



Service Manual



Service Manual

CG225_LG225

Model : CG225



REVISED HISTORY

DATE	ISSUE	CONTENTS OF CHANGES	S/W VERSION

The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

This manual provides the information necessary to install, program, operate and maintain the CG225.

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1. Introduction

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the CG225

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges you're your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. LGE does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. LGE will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the CG225 or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the CG225 must be performed only by the LGE or its authorized agent. The user may not make any changes and/or repairs except as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. Introduction

E. Notice of Radiated Emissions

The CG225 complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

An CG225 may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the  sign. Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Base Band
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
EL	Electroluminescence
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Minimum Shift Keying
GPIO	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop
PAM	Power Amplifier Module

1. Introduction

PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
FEM	Front End Module
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. General Performance

2.1 Product Name

CG225 : Support GPRS (Class 10)

2.2 Supporting Standard

Item	Feature	Comment
Supporting Standard	GSM850/ E-GSM/DCS/PCS Quad Band Phase 2+ SIM Toolkit : Class 1,2,3	
Frequency Range	GSM-850 TX : 824 - 849 MHz GSM-850 RX : 869 - 894 MHz EGSM TX : 880 - 915 MHz EGSM RX : 925 -960 MHz DCS TX : 1710 - 1785 MHz DCS RX : 1805 - 1880 MHz PCS TX : 1850 - 1910 MHz PCS RX : 1930 - 1990 MHz	
Application Standard	WAP 2.0 : Yes MMS : Yes JAVA : MIDP v2.0	

2.3 Main Parts: GSM Solution

	CG225
Digital Baseband	Calypso-AMR C035(D751992GHH))
Analog Baseband	IOTA(TWL3025))
RF Chip	Aero-2 (SI4210)

2. General Performance

2.4 H/W Features

Item	Feature	Comment
Form Factor	Dual LCD Folder	
Battery	Capacity Standard: Li-Ion, 1000mAh(Min)	Cell Size: Standard 5.7(L)x34.15(W)x53.55(H)mm
	Packing Type: Inner Pack	
Size	Standard: 85.3 x 48 x 22.9 mm	L x W x H
Weight	92.5g	With Battery
PCB	Main PCB : 8Layers, 1t	
AVG TCVR current (mA)	Max : 290 mA (GSM, Power Level 5) Max : 120 mA (GSM, Power Level 19)	
Standby Current	4 mA	@ Paging Period 6
Standby time	Up to 250 hours	@ Paging Period 6
Charging time	Below 3 hours	@ Power Off /1000mAh
Talk time	Min : 3hr 30 min @Power Level 7 Min : 6hr @Power Level 12	@ 1000 mAh
RX sensitivity	GSM 850 : -105 dBm, EGSM : -105 dBm DCS : -105 dBm, PCS : -105 dBm	
TX output power	GSM 850 : 32.0 dBm, EGSM : 32.0 dBm DCS : 30 dBm, PCS : 30 dBm	Class4 (GSM850, EGSM) Class1 (DCS, PCS)
GPRS compatibility	GPRS Class 10	
SIM card type	Plug-In SIM 3V	
Display	-MAIN LCD : 65K Color CSTN (128*128) -Sub : 96*64, Color Filter -Backlight : White LED	
Keypad	Alphanumeric Key : 12 Function Key : 12 Side Key : 3 Total Number of Keys : 27	Function Key: 4 Key Navigation & OK, F1, F2, SND, END/PWR, Clear, Camera,Gallery

2. General Performance

Item	Feature	Comment
Antenna	External Type	Quad-band
System connector	24 Pin	
Ear Phone Jack	3 Pole (ϕ 2.5mm)	
PC synchronization	No	CDROM
Memory	Flash : 128Mbit / SRAM : 64Mbit	AMD
Speech coding	FR, EFR, HR, AMR	
Data & Fax	Built in Data & Fax support	
Vibrator	Built in Vibrator	
MIDI (for Buzzer Function)	64 Poly	Buzzer Function By Using MIDI IC
Voice Recording	No	
Travel Adapter	Yes	
Options	Ear-Microphone Data Cable Cigarette Lighter Adapter	

2. General Performance

2.5 S/W Features

Item	Feature	Comment
RSSI	0~5 level	
Battery Charging	0~4 level	
Key Volume	0~5 level	
Keypad Volume	0~5 level	
Effect sound volume	0~5 level	
Ring Volume	0~5 level	
Time/Date Display	Yes	
Text Input	T9	
Multi-language	Yes	
Quick Access Mode	Schedule/Ring Tone/Phonebook GPRS	
PC Sync	Schedule/Phonebook/SMS	MS Scheduler & Outlook
Speed Dial	Yes (2~9)	Voice mail center → 1 key
Profile	Yes	
CLIP/CLIR	Yes	
Phonebook	3 Number + 1 Memo + 1 e-mail	Phone (Up to 255 entries)
Last Dial Number	Yes (20)	
Last Received Number	Yes (20)	
Last Missed Number	Yes (10)	
Search Number/Name	Yes	
Group	7 / User Editor	
Fixed Dial Number	Yes	
Voice Memo	30 secs * 3	
Call Remainder	Yes	
Network Selection	Automatic / Manual	

2. General Performance

Item	Feature	Comment
Mute	Yes	
Call Divert	Yes	
Call Barring	Yes	
Call Charge	Yes	
Call Duration	Yes	
SMS (EMS)	100	
EMS Send/Receive/Save	Yes	Melody/Picture/Animation
MMS	Yes	
WAP Browser	WAP 2.0	
Java	CLDC v1.0.3 / MIDP v1.0.3	
Wall Paper	Yes	Max. 10 preset
Download Melody/ Wallpaper (MMS)	Over the WAP	
Long Message	Max. 918 Character(6page*153)	
Cell Broadcast	Yes	
Calendar	Yes	
Memo	20	
World Clock	Yes	
Unit Convert	Length/Surface/Volume/Weight	
Fax & Data	Yes	
SIM Lock	Yes	Operator Dependent
SIM Toolkit	Class 1,2,3	
Phone lock	Yes	
Security	DRM (Forward-lock only)	
CPHS	Yes	
IM	Yes	

3. H/W Circuit Description

3. H/W Circuit Description

3.1 RF Transceiver General Description

The RF parts consist of a transceiver part, a power amplifier part, a front-end module part, a voltage supply part, and a VC-TCXO part.

The Aeroll transceiver is composed of single RF chipset, Si4210-GM[U502] which is a quad-band GSM/GPRS wireless communications.

This device integrated a receiver based on a low IF (200KHz) architecture and a transmitter based on modulation loop architecture. The transceiver employed a 3 wire serial interface to allow an external system controller to write the control registers for dividers, receive path gain, power down setting, and other controls.

3.2 Receiver Part

The receiver part uses a low-IF receiver architecture that allows for the on-chip integration of the channel selection filters, eliminating the external RF image reject filters and the IF SAW filter required in conventional super-heterodyne architecture. The Si4210-GM[U502] integrates four differential input LNAs that are matched to the 200 Ohm balanced-output SAW filters through external LC matching networks.

A quadrature image-rejection mixer downconverts the RF signal to a 200kHz intermediate frequency (IF) with the RFLO from the frequency synthesizer. The mixer output is amplified with an analog programmable gain amplifier (PGA) and quadrature IF signal is digitized with high resolution A/D converters (ADCs). The Si4210-GM[U502] downconverts the ADC output to baseband with a digital 200kHz quadrature LO signal. Digital decimation and IIR filters perform digital filtering, and remove blocking and reference interference signals. After filtering, the digital output is scaled with digital PGA, which is controlled with the DGAIN[5:0] bits in register 20h. The amplified digital output signal go through with DACs that drive a differential analog signal onto the RXIP, RXIN, RXQP and RXQN pins to interface to standard analog ADC input baseband ICs.

	Antenna Bar Number	Rx Power (dBm)
Antenna Display	5 → 4	-85dBm±2dBm
	4 → 3	-90dBm±2dBm
	3 → 2	-95dBm±2dBm
	2 → 1	-100dBm±2dBm
	1 → 0	-105dBm±2dBm

Table 3-1. Antenna Display

3. H/W Circuit Description

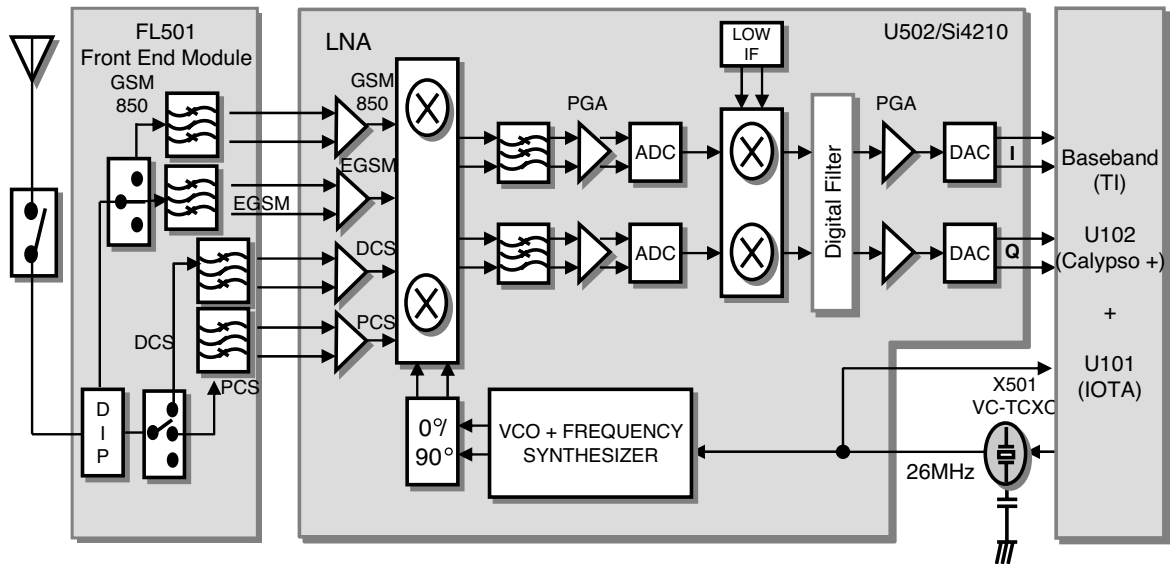


Figure 1. RF Receiver Block

3.2.1. RF Front End

Digital Filter Digital Filter

RF front end consists of Front End Module(FL501), quad band LNAs integrated in transceiver(U502). The Received RF signals (GSM-850 869MHz ~ 894MHz, EGSM 880 MHz ~ 960MHz, DCS 1710 MHz ~ 1880 MHz, PCS 1930MHz ~ 1990MHz) are fed into the antenna or mobile switch. An antenna matching circuit is between the antenna and the mobile switch. The Front End Module(FL501) is used for control the Rx and TX paths. And the input signals ANT_SW1 and ANT_SW2 of a FL501 are directly connected to baseband controller to switch either TX or RX path on. Front End Module(FL501) is an antenna switch module for Quad band phone. The logic and current is given below Table 3-2.

	VC1(PIN 15)	VC2(PIN 14)	Current
GSM 850/EGSM RX	0 V	0 V	< 0.1 mA
DCS/PCS RX	2.5~3.0 V	0 V	< 0.1 mA
GSM-850/EGSM TX	0 V	2.5~3.0 V	< 0.1 mA
DCS/PCS TX	2.5~3.0 V	2.5~3.0 V	< 0.1 mA

Table 3-2. The Logic and Current

3. H/W Circuit Description

3.2.2. Synthesizer

The Aero II transceiver integrates two complete PLLs including VCOs, varactors, resonators, loop filters, reference and VCO dividers, and phase detectors. The RF PLL uses two multiplexed VCOs. The RF1 VCO is used for receive mode, and the RF2 VCO is used for transmit mode. The IF PLL is used only during transmit mode. All VCO tuning inductors are also integrated. The IF and RF output frequencies are set by programming the N-Divider registers, NRF1, NRF2 and NIF. Programming the N-Divider register for either RF1 or RF2 automatically selects the proper VCO.

Transmit modes should always use $f_{\phi} = 200\text{kHz}$. The IF and RF output frequencies are set by programming the N-Divider registers and also programmed via 3-wire interface with external system controller.

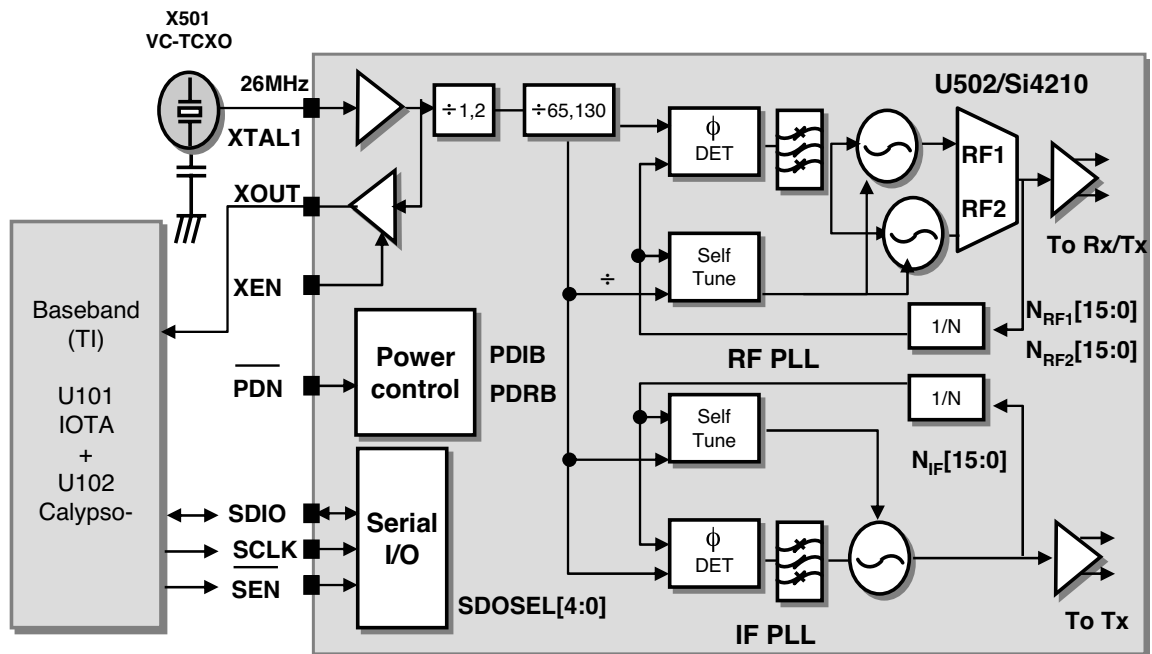


Figure 2. Synthesizer Block

3.3 Transmitter Part

The Transmitter part contains the transmitter parts of Si4210-GM[U502], Power Amp Module[U501] and Front End Module[FL501]. The transmit section of Si4210-GM[U502] consists of an I/Q base band up_converter, an offset phase-locked loop(OPLL) and two output buffers that can drive external power amplifiers(PA). The RF GMSK outputs from the transmit VCO are fed directly to the RF power amplifiers. The peak output power and the profile of the transmitted burst are controlled by means of incorporated power control circuits inside of PA and DAC output from the Base band Controller. The PA outputs pass to the antenna connector via Front End Module.

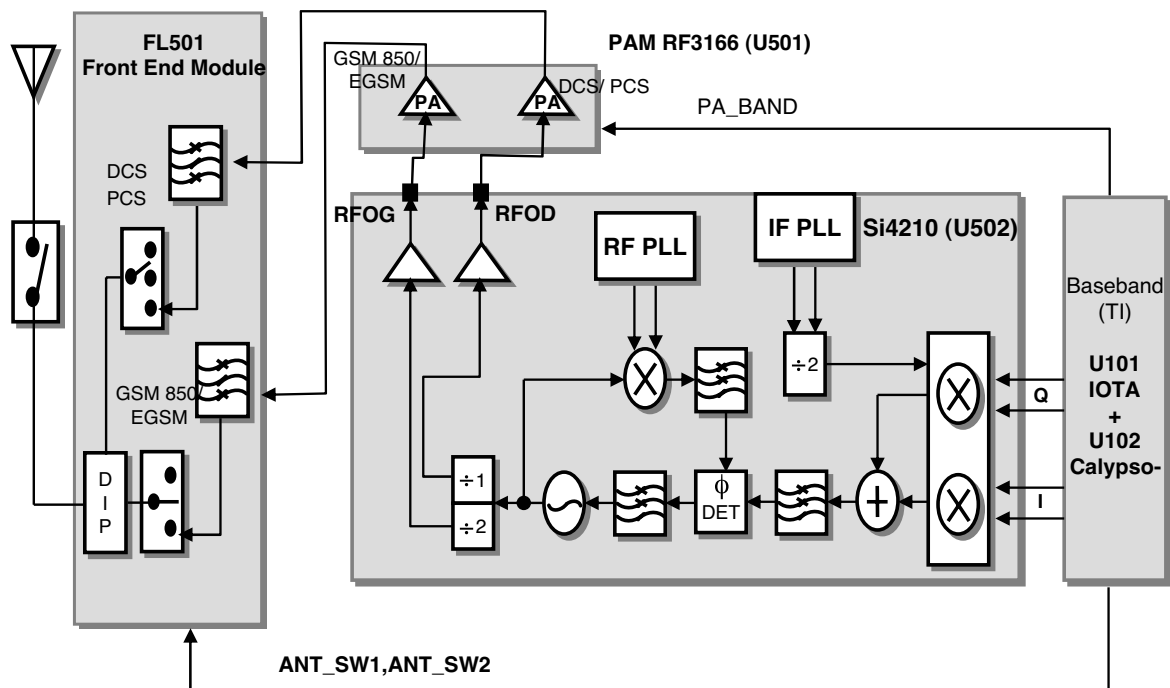
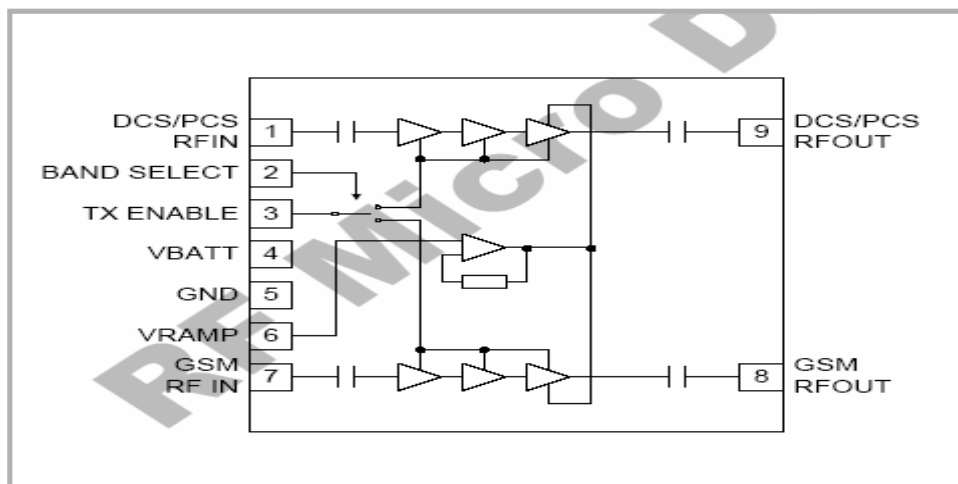


Figure 3. RF Transmit Block

3. H/W Circuit Description

3.3.1. Power Amplifier

The RF3166 [U501] is a quad-band EGSM 900/GSM 850/DCS/PCS power amplifier module that incorporates an indirect closed loop method of power control. The indirect closed loop is fully self-contained and it does not require loop optimization. It can be driven directly from the DAC output in the baseband circuit. On-board power control provides over 37 dB of control range with an analog voltage input (Vramp). Efficiency is 60% at GSM and 55% at DCS/PCS.



3.3.2. 26MHz Clock

The 26 MHz clock consists of a TCXO (Temperature Compensated Crystal Oscillator) which oscillates at a frequency of 26 MHz. It is used within the Si4210 RF Main Chip, BB Analog chip-set (IOTA), Digital chip-set (Calypso).

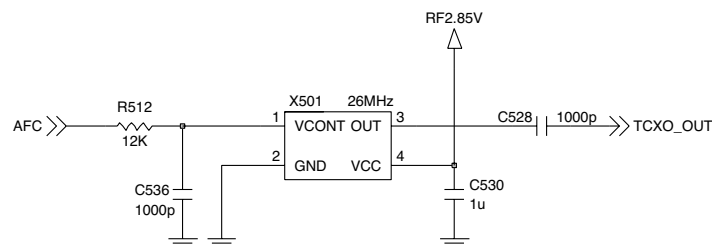


Figure 5. VC-TCXO Circuit

3.3.3. Power Supplies and Control Signals

An external regulator(U503) is used to provide DC power to RF part. Every RF component except power amp module uses this external regulator.

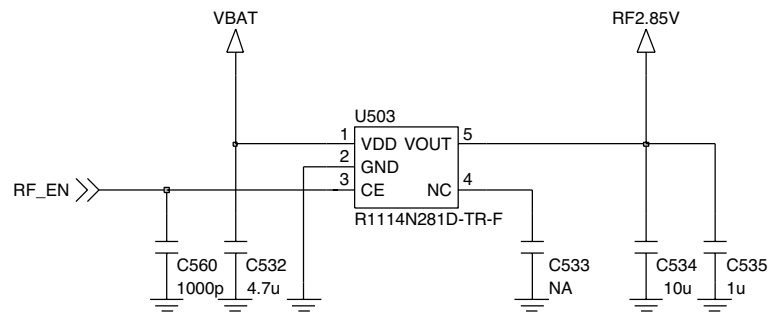


Figure 6 External regulator Circuit

3. H/W Circuit Description

3.4 Digital Baseband (DBB) Processor

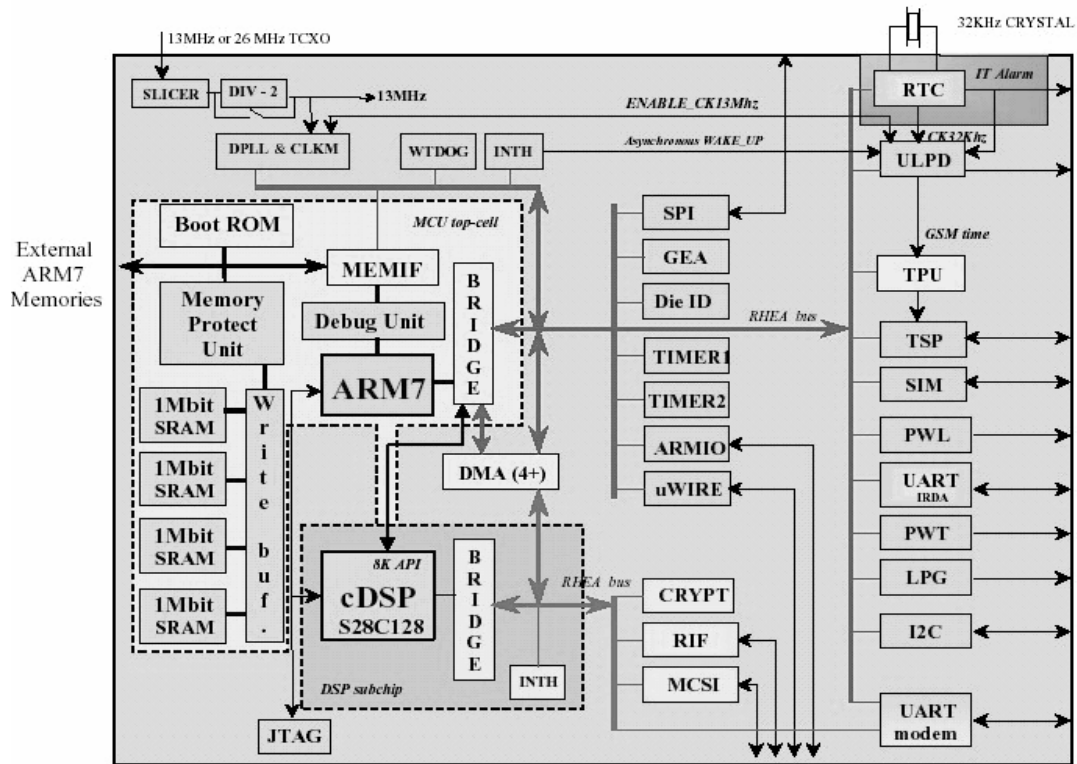


Figure 7. Top level block diagram of the Calypso-

3.4.1. General Description

CALYPSO is a chip implementing the digital base-band processes of a GSM/GPRS mobile phone. This chip combines a DSP sub-chip (LEAD2 CPU) with its program and data memories, a Micro-Controller core with emulation facilities (ARM7TDMI), internal 8Kb of Boot ROM memory, 4M bit SRAM memory, a clock squarer cell, several compiled single-port or 2-ports RAM and CMOS gates. The chip will fully support the Full-Rate, Enhanced Full-Rate and Half-Rate speech coding. CALYPSO implements all features for the structural test of the logic (full-SCAN, BIST, PMT, JTAG boundary-SCAN).

3.4.2. Block Description

CALYPSO architecture is based on two processor cores ARM7 and DSP using the generic RHEA bus standard as interface with their associated application peripherals.

CALYPSO is composed from the following blocks:

- ARM7TDMI : ARM7TDMI CPU core
- DSP sub chip
- ARM peripherals

General purpose peripherals

- ARM Memory Interface for external RAM, Flash or ROM
- 4 Mbit Static RAM with write-buffer

Application peripherals

- ARM General purposes I/O with keyboard interface and two PWM modulation signals
- UART 16C750 interface (UART_IRDA) with
 - IRDA control capabilities (SIR)
 - Software flow control (UART mode).
- UART 16C750 interface (UART_MODEM) with
 - Hardware flow protocol (DCD, CTS/RTS)
 - Auto baud function
- SIM Interface.
- TPU(Time Processing Unit) : Processing for GSM time base
- TSP(Time Serial Port) : GSM data interface with RF and ABB

Memory Interface : External/Internal Memory Interface

nCS0 : FLASH1, 16bit access, 3 wait state

nCS1 : FLASH2, 16bit access, 3 wait state

nCS2 : Ext SRAM, 16bit access, 3 wait state

nCS3 : Main LCD(16bit access), OEL(8bit access) addressing, 3 wait state

nCS4 : MIDI(8bit access), USB(8bit access) addressing, 3 wait state

nCS6 : Int SRAM, 32bit access, 0 wait state

- Calypso is internally 39MHz machine (25ns machine cycle), so it requires 3 wait-state for 80ns access($25 \times 4 = 100$ ns).

3. H/W Circuit Description

3.4.3. RF Interface (TPU, TSP Block)

Calypso uses this interface to control IOTA_CS(ABB Processor) and AERO(RF Processor) with GSM Time Base

TSP (Time Serial Port)		
Resource	Interconnection	Description
TSPDO	ABB & RF main Chip	Control Data
TSPDI/IO(4)	GPIO4	
TSPEN0	ABB	ABB Control Data Enable Signal
TSPEN1	STROBE	STROBE Control Data Enable Signal
TSPCLKX	CLK	CLK Control Data Enable Signal
TPU (Parallel Port)		
TSPACT0	PDNB	RF main Chip Reset Signal
TSPACT01	PA_ON	Power Amp ON signal
TSPACT02	PA_BAND	Power Amp band-selection signal
TSPACT03	ANT_SW1	FEM control signal
TSPACT04	ANT_SW2	FEM control signal

Table 3-4. RF Interface Spec.

SIM interface scheme is shown in (Figure 8).

SIM Interface

The diagram shows the internal connections of the DBB block. The inputs are SIM_IO, SIM_CLK, SIM_RST, SIM_PWRCTRL, and SIM_CD. The output is V_IO. The connections are as follows:

- SIM_IO is connected to V_IO through a 10k resistor.
- SIM_CLK is connected to V_IO.
- SIM_RST is connected to V_IO.
- SIM_PWRCTRL is connected to V_IO.
- SIM_CD is connected to V_IO through a 100k resistor.

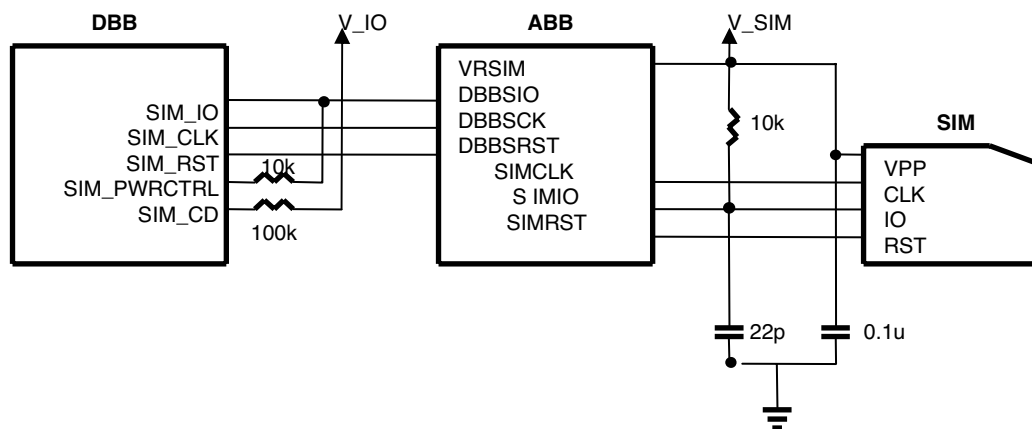


Figure 8. SIM Interface

CG225 has two UART Drivers as follow :

UART : Hardware Flow Control / Fax & Data Modem

3. H/W Circuit Description

UART MODEM (UART1)		
Resource	Name	Description
TX_MODEM	TXD	Transmit Data
RX_MODEM	RXD	Receive Data
CTS_MODEM	CTS	Clear To Send
RTS_MODEM	RTS	Request To Send
GPIO 3	DSR	Data Set Ready

3. H/W Circuit Description

3.4.6. GPIO Map

In total 16 allowable resources, CG225 is using 13 resources except 3 resources dedicated to SIM and Memory. CG225 GPIO (General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table.

I/O #	Net Name	I/O	Resource State	Inactive State	Active State
I/O (0)	VOICEMAIL_EN	O	GPIO	LOW	HIGH (Voice mail or SPK phone)
I/O (1)	MELODY_INT	I	GPIO	HIGH	LOW
I/O (2)	SPK_EN	O	GPIO	LOW	HIGH (SPK phone & MIDI sound)
I/O (3)	DSR (Note 1)	I	GPIO	HIGH	LOW
I/O (4)	LCD_DIMCTRL1	O	GPIO	LOW (LCD B/L Off)	HIGH (LCD B/L On)
I/O (5)	SIM_PWCTL	O	SIM		
I/O (6)	BCLKX	O	GPIO	LOW	HIGH (@ PWR on)
I/O (7)	LCD_RESET	O	GPIO	HIGH (Normal Operation)	LOW (Reset)
I/O (8)	IFMODE	O	GPIO	LOW (@ CG200 LCD)	HIGH
I/O (9)	PCM_TX	O	DAI	(Note 2)	(Note 2)
I/O (10)	PCM_RX / INDLED_R	O	DAI / GPIO	LOW (Red LED off)	HIGH (Red LED on)
I/O (11)	PCM_CLK / INDLED_G	O	DAI / GPIO	LOW (Green LED off)	HIGH (Green LED on)
I/O (12)	PCM_SYNC / LCD_ID	I	DAI / GPIO	LOW (HYeLCD)	HIGH (SII LCD)
I/O (13)	HANDSFREE	I	GPIO	HIGH	LOW (Handsfree)
I/O (14)	NBHE	O	MEMORY		
I/O (15)	NBLE	O	MEMORY		

Table 3-6. GPIO Map Table

3.5 Analog Baseband (ABB) Processor

3.5.1. General Description

IOTA is Analog Baseband (ABB) Chip supports GSM850/900,DCS1800, PCS1900, GPRS Class 10 with Digital Basband Chip (Calypso).

IOTA processes GSM modulation/demodulation and power management operations.

Block Description

- Audio Signal Processing & Interface
- Baseband in-phase(I), quadrature(Q) Signal Processing
- Auxiliary RF converters
- Five-channel analog-to-digital converters (ADC)

3. H/W Circuit Description

- Six Low-dropout (LDO), linear voltage regulators targeted core, general I/O, memory I/O, SIM I/O
- High voltage (20V) Li-Ion or Ni-MH battery charging control
- Voltage detectors (with power-off delay)
- Voice Codec

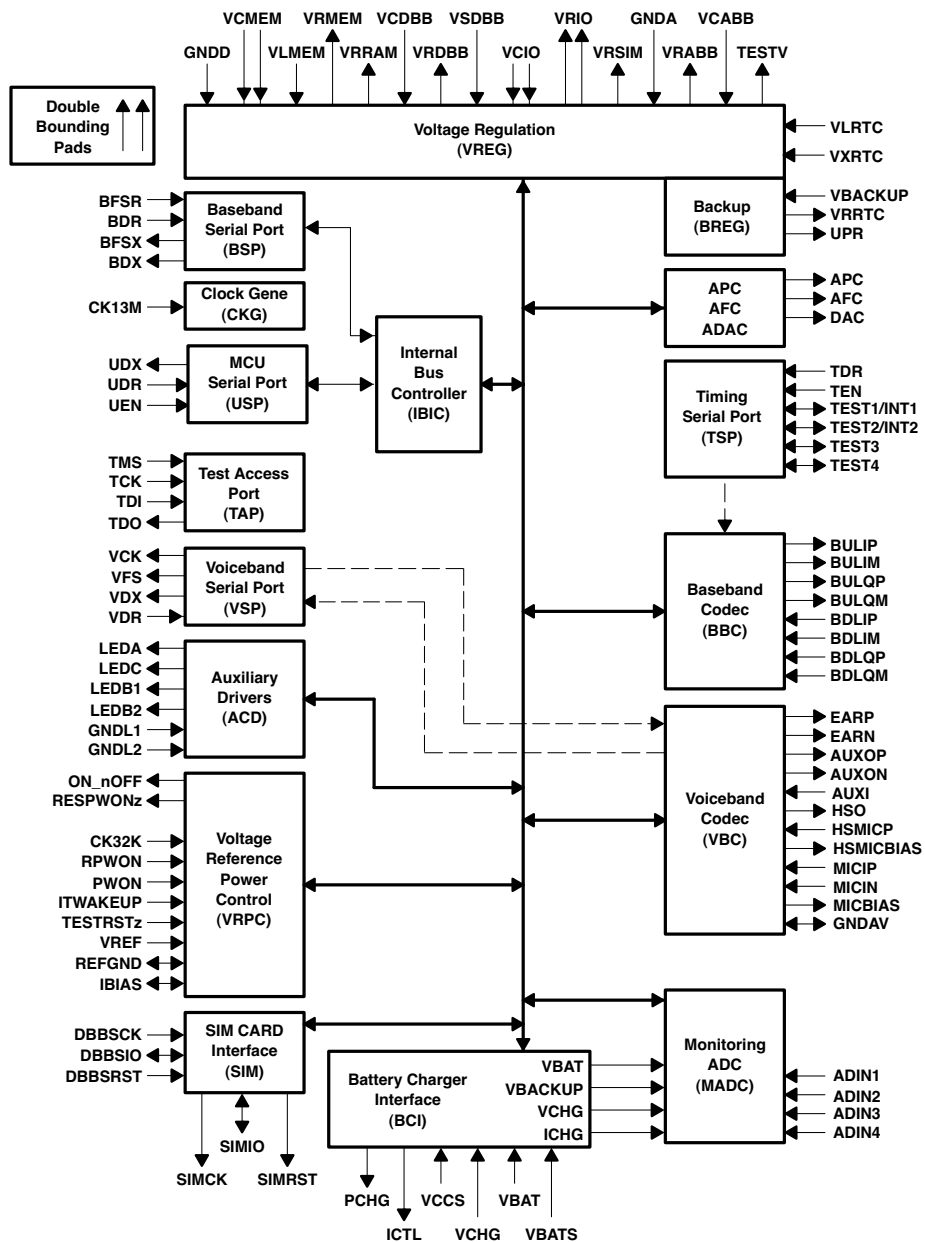


Figure 9. Top level block diagram of the IOTA(TWL3025)

3.5.2. Audio Signal Processing & Interface

The voice codec circuitry processes analog audio components in the voice uplink (VUL) path and applies this signal to the voice signal interface for eventual baseband modulation. In the voice downlink (VDL) path, the codec circuitry changes voice component data received from the voice serial interface (VSP) into analog audio.

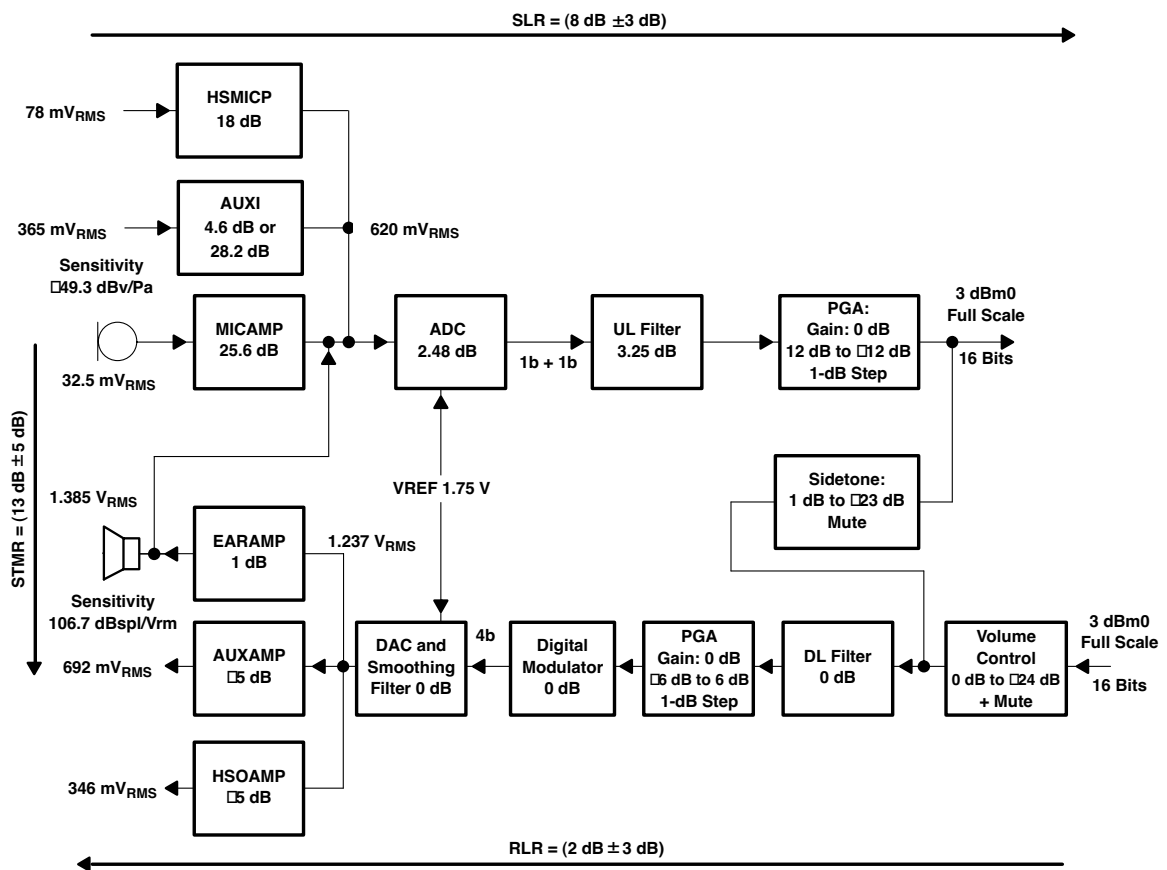


Figure 10. Audio Interface Block Diagram

3. H/W Circuit Description

3.5.3. Audio uplink processing

The VUL path includes two input stages. The first stage is a microphone amplifier, compatible with electret microphones containing a FET buffer with open drain output. The microphone amplifier has a gain of typically 25.6 dB (1 dB) and provides an external voltage of 2.0 V or 2.5 V to bias the microphone (MICBIAS). The auxiliary audio input can be used as an alternative source for higher level speech signals. This stage performs single-ended-to differential conversion and provides a programmable gain of 4.6 dB or 28.2 dB. The third stage is a headset microphone amplifier, compatible with electret microphones. The headset microphone amplifier has a gain of typically 18 dB and provides an external voltage of 2.0 V or 2.5 V to bias the headset microphone (HSMICBIAS). When one of the input stages (MICI, AUXI, HSMICP) is in use, the two other input stages are disabled and powered down. The resulting fully differential signal is fed to the analog-to-digital converter (ADC).

The ADC conversion slope depends on the value of the internal voltage reference. Analog-to-digital conversion is performed by a third-order Σ - Δ modulator with a sampling rate of 1 MHz. Output of the ADC is fed to a speech digital filter, which performs the decimation down to 8 kHz and band-limits the signal with both low-pass and high-pass transfer functions. Programmable gain can be set digitally from -12 dB to +12 dB in 1-dB steps and is programmed with bits 4-0 (VULPG(4:0)) of the voiceband uplink register. The speech samples are then transmitted to the DSP via the VSP at a rate of 8 kHz.

There are 15 meaningful output bits. Programmable functions of the VUL path, power-up, input selection, and gain are controlled by the BSP or the USP via the serial interfaces. The VUL path can be powered down by bit 0 (VULON) of the power down register.

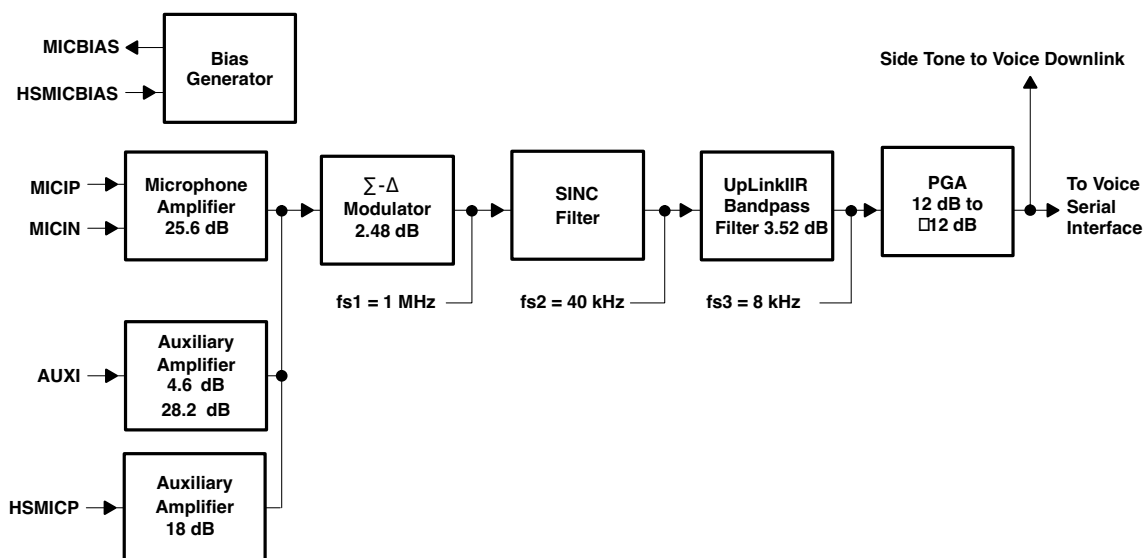


Figure 11. Uplink Path

3.5.4. Audio downlink processing

The VDL path receives speech samples at the rate of 8 kHz from the DSP via the VSP and converts them to analog signals to drive the external speech transducer. The digital speech coming from the DSP is first fed to a speech digital filter that has two functions. The first function is to interpolate the input signal and to increase the sampling rate from 8 kHz up to 40 kHz to allow the digital-to-analog conversion to be performed by an oversampling digital modulator. The second function is to band-limit the speech signal with both low-pass and high-pass transfer functions. The filter, the PGA gain, and the volume gain can be bypassed by programming bit 9 (VFBYP) in the voiceband control register 1.

The interpolated and band-limited signal is fed to a second order I-" digital modulator sampled at 1 MHz to generate a 4-bit (9 levels) oversampled signal. This signal is then passed through a dynamic element matching block and then to a 4-bit digital-to-analog converter (DAC). The volume control and the programmable gain are performed in the voiceband digital filter. Volume control is performed in steps of 6 dB from 0 dB to -24 dB. In mute state, attenuation is higher than 40 dB. A fine adjustment of gain is possible from -6 dB to +6 dB in 1-dB steps to calibrate the system depending on the earphone characteristics. This configuration is programmed with the voiceband downlink control register.

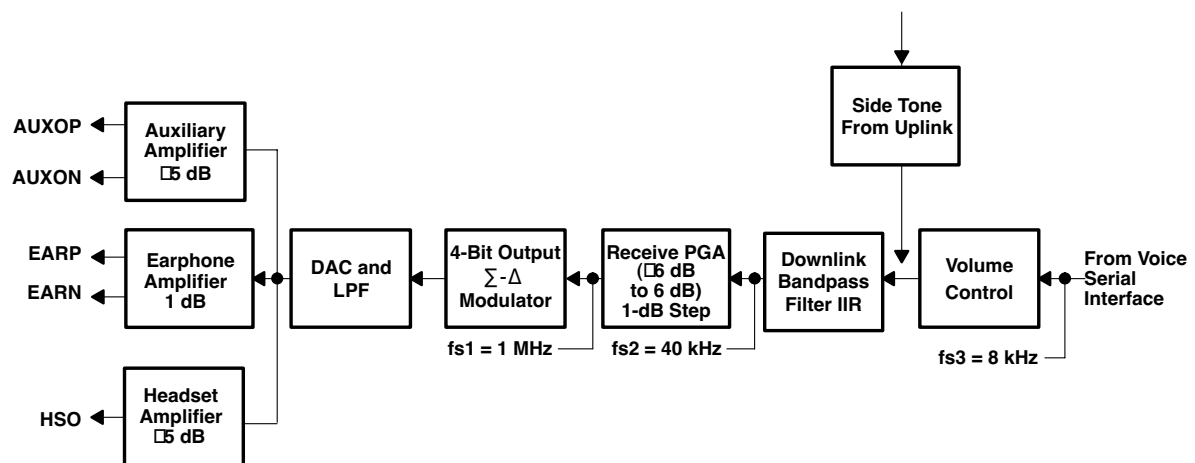


Figure 12. Downlink Path

3. H/W Circuit Description

3.5.5. Baseband Codec (BBC)

Baseband codec is composed of baseband uplink path (BUL) and baseband downlink path (BDL). BUL makes GMSK (Gaussian Minimum Shift Keying) modulated signal which has In-phase (I) component and quadrature (Q) component with burst data from DBB. This modulated signal is transmitted through RF section via air. BDL process is opposite procedure of BUL. Namely, it performs GMSK demodulation with input analog I&Q signal from RF section, and then transmit it to DSP of DBB chip with 270.833kHz data rate through BSP.

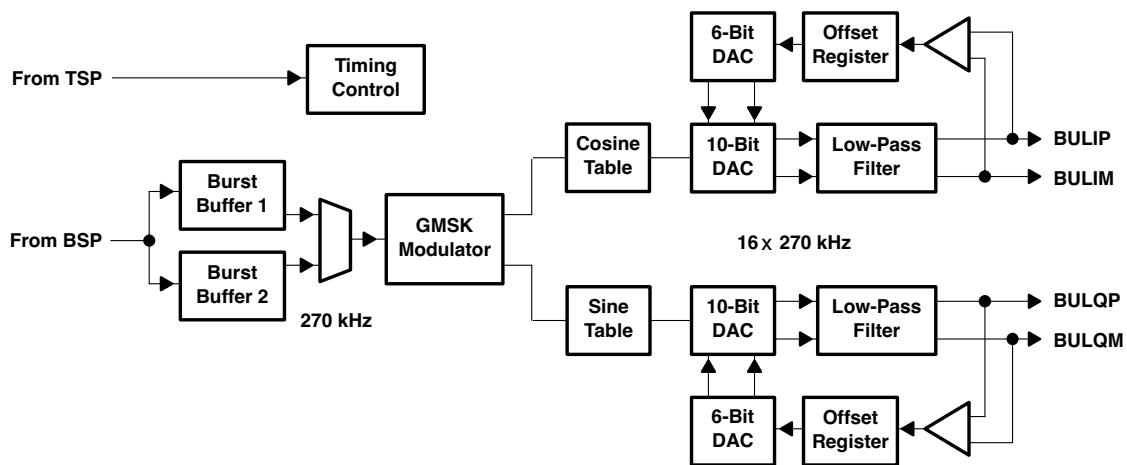


Figure 13. Baseband Codec Block Diagram

3.5.6. Voltage Regulation (VREG)

There are 7 LDO (Low Drop Output) regulators in ABB chip.

The output of these 7 LDOs are as following table. (Figure14) shows the power supply related blocks of DBB/ABB and their interfaces in CG225.

3. H/W Circuit Description

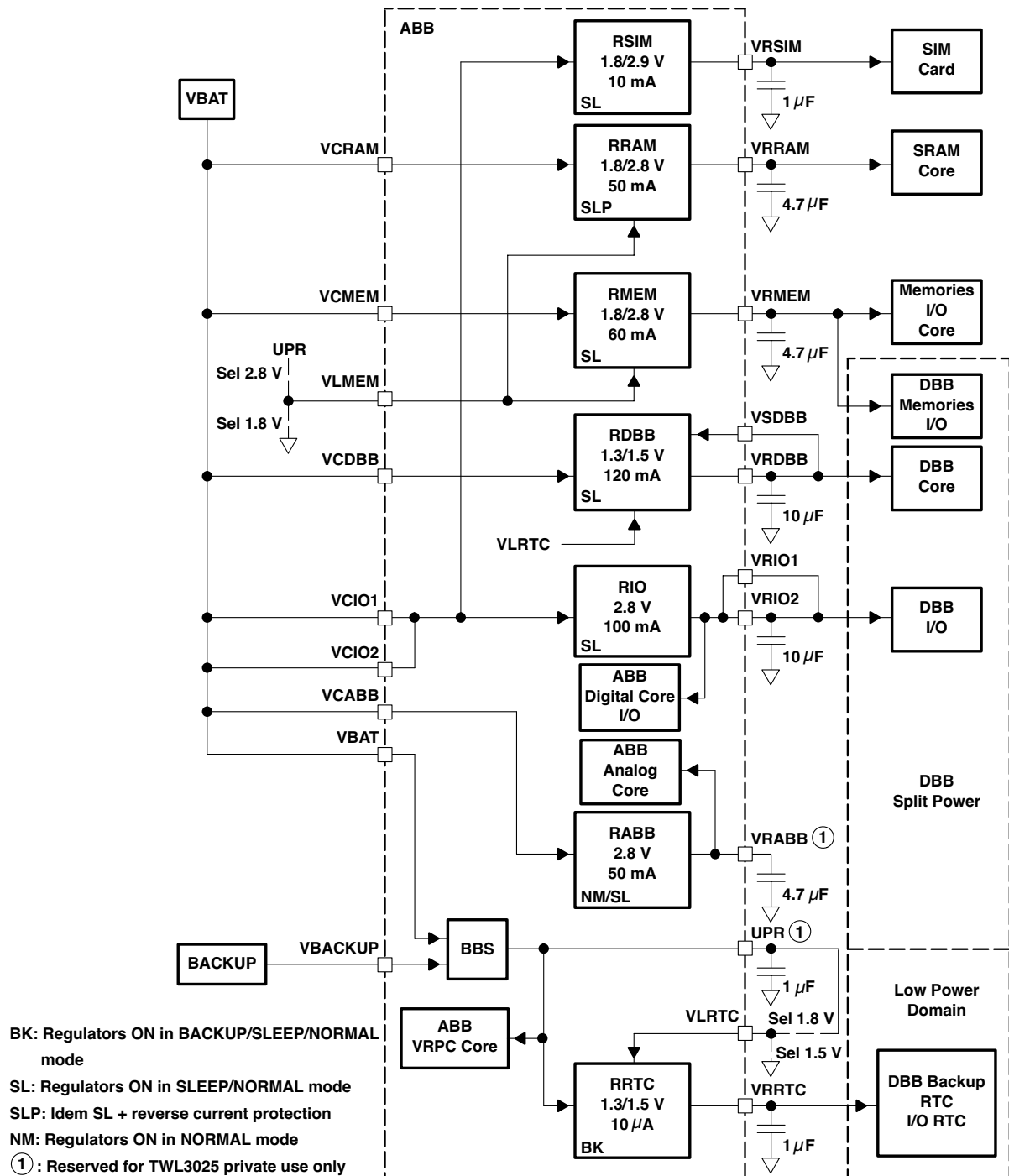


Figure 14. Power Supply Scheme

3. H/W Circuit Description

	Output Voltage	Usage
VRDBB	1.5V	Digital Core of DBB
VRIO	2.8V	Peripheral devices
VRMEM	2.8V	External memory
VRRAM	2.8V	LCD & peripheral devices
VRABB	2.8V	Analog Block of ABB
VRSIM	2.85V	SIM card driver
VRRTC	1.5V	RTC & 32kHz-crystal

Table 3-7. LDO Output Table

3.5.7. ADC Channels

ABB ADC block is composed of 4 internal ADC (Analog to Digital Converter) channels and 4 external ADC channel. This block operates charging process and other related process by reading battery voltage and other analog values.

ADC 8 Channels		
Resource	Name	Description
VCHG	VCHG	Charging Management
VBAT	VBAT	
ICHG	ICHG	
VBACKUP	VBACKUP	Backup Battery
ADCIN1	ADIC1	PCB_Revision
ADCIN2	BATT_TEMP	Battery Detect
ADCIN3	TEMPSENSE	Temperature Sensing
ADCIN4	HOOK_DETECT	HOOK_DETECT

Table 3-8. ADC Channel Spec.

3.5.8. Charging

Charging block in ABB processes charging operation by using VBAT, ICHG value through ADC channel. Battery Block Indication and SPEC of CG225 is as follow.



Figure 15. Battery Block Indication

1. Charging method: CC-CV
2. Charger detect voltage: about 5.2V
3. Charging time: 3h under
4. Icon stop current: 120mA
5. Charging current: 550mA
6. CV voltage: 4.2V
7. Cutoff current: 30mA
8. Full charge indication current (icon stop current) : 100mA
9. Recharge voltage: 4.16V
10. Low battery alarm
 - a. Idle: 3.55V
 - b. Dedicated: 3.59V
11. Low battery alarm interval :
 - a. Idle: 2min
 - b. Dedicated: 1min
12. Power-off voltage without TA : 3.35V
Power-off voltage with TA : 2.80V
13. Charging temperature ADC range
 - a. ~ -5°C : small charging operation.
 - b. -5°C ~ 50°C : charging.
 - c. 50°C ~ : small charging operation.

3. H/W Circuit Description

3.5.9. Switch On/Off

CG225 Power State : Defined 4cases as follow

- Power-ON : mobile is powered by main battery or backup battery.
- Power-OFF : mobile isn't any battery.
- Switch-ON : mobile is powered and waken up from switch-off state.
- Switch-OFF : mobile is powered to maintain only the permanent function (ULPD).

To enter into Switch-ON state, one of following 4 condition is satisfied.

- PWR-ON pushed after a debouncing time of 30ms.
- ON_REMOTE : After debouncing, when a falling edge is detected on RPWON pin.
- IT_WAKE_UP : When a rising edge is detected on RTC_ALARM pin.
- CHARGER_IC :When a charger voltage is above VBAT+0.4V on VCHG.

3.5.10. Memories

CG225 using 128Mbit Flash + 64Mbit SRAM with 16 bit parallel data bus thru ADD01 ~ ADD22.

3.5.11. Display & FPCB Interface

LCD module include:

- MAIN LCD: 128*128, 65,000 Color STN LCD
- SUB LCD: 96*64, Mono
- LCD Backlight: White LED illumination

Camera module include:

- Camera : 0.3M Pixel (VGA Camera)

MAIN BOARD AND FPCB is connected by 60pin connector. FPCB have two connectors , both connectors has 60 & 40pins. FPCB and MAIN BOARD is connected by 60 pin connector. LCD module is connect by 40pin connector .

3. H/W Circuit Description

Connector Interface Spec.

Pin #	WS		Description
1	GND		Ground
2	L_D(0)		LCD Data
3	L_D(1)		LCD Data
4	L_D(2)		LCD Data
5	L_D(3)		LCD Data
6	L_D(4)		LCD Data
7	L_D(5)		LCD Data
8	L_D(6)		LCD Data
9	L_D(7)		LCD Data
10	LCD_RESET		Reset
11	LCD_ID		LCD ID detect
12	L_MAIN_CS		MAIN LCD Chip select
13	L_SUB_CS		SUB LCD Chip select
14	L_WR		LCD Write
15	L_A(1)		LCD Address
16	IFMODE		Interface mode setting
17	2V85_CAM		Camera IC Power (2.8V)
18	C_PWR_DVDD		Camera Sensor Digital Power
19	VIB		Vibrator
20	GND		Ground
21	C_PWR_AVDD		Camera Sensor Analog Power
22	C_PWDN		Camera Sensor Power Down Pin
23	C_MCLK		Camera Sensor MCLK
24	C_PCLK		Camera Sensor PCLK
25	C_HS		Camera Sensor HS
26	C_VS		Camera Sensor VS
27	C_SDA		Camera Sensor SDA
28	C_SCK		Camera Sensor SCK
29	C_RST		Camera Sensor Reset
30	GND		Ground
31	GND		Ground
32	C_CD7		Camera Sensor Data
33	C_CD6		Camera Sensor Data
34	C_CD5		Camera Sensor Data
35	C_CD4		Camera Sensor Data
36	C_CD3		Camera Sensor Data
37	C_CD2		Camera Sensor Data
38	C_CD1		Camera Sensor Data
39	C_CD0		Camera Sensor Data
40	GND		Ground
41	VBACKUP		Back Up Battery
42	GND		Ground
43	GND		Ground
44	SPK_RCV_P		Speaker Positive line
45	SPK_RCV_N		Speaker Negative line
46	GND		Ground
47	GND		Ground

Table 3-9. Connector Interface Spec.

3. H/W Circuit Description

3.5.12. Keypad Switching & Scanning

Table 3-10. Keypad Map

	KBC0	KBC1	KBC2	KBC3	KBC4
KBR0	LEFT	RIGHT	UP	DOWN	OK
KBR1	1	2	3	CAM	CLEAR
KBR2	4	5	6	F1	VOL_UP
KBR3	7	8	9	F2	VOL_DOWN
KBR4	STAR	0	SHAP	SEND	F3

DBB supports 25 Key Map and Switch-ON Key is connected directly to ABB as (Figure16).

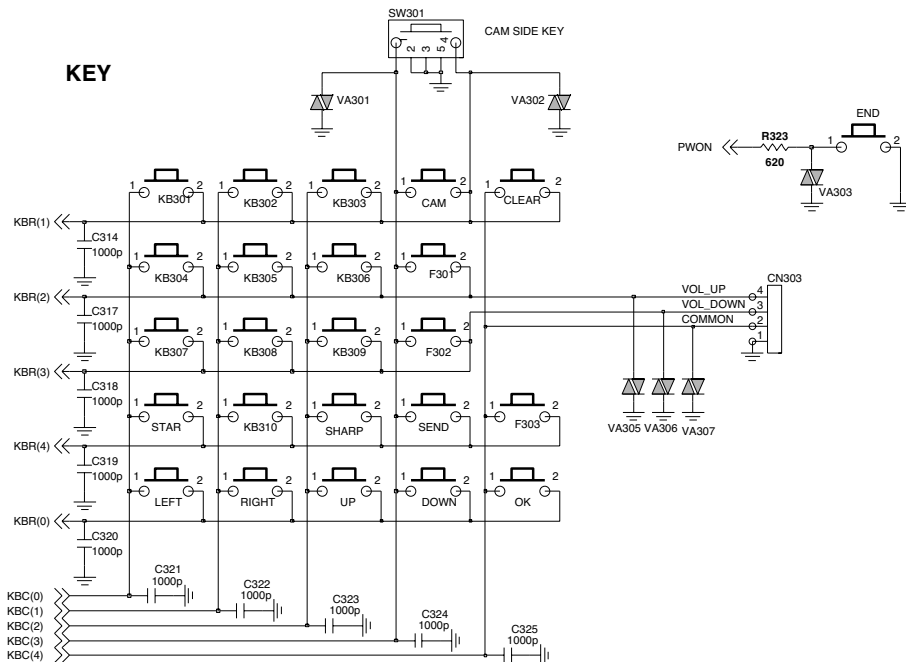


Figure 16. Keypad Scanning Scheme

3.5.13. Keypad back-light Illumination

There are 6 Deep Blue LEDs in Main Board for Keypad Backlight and 6 Deep Blue LEDs in Upper Board for Upper Board Backlight. Keypad Back-light is driven by 'LEDB' line from IOTA .

KEY BACKLIGHT

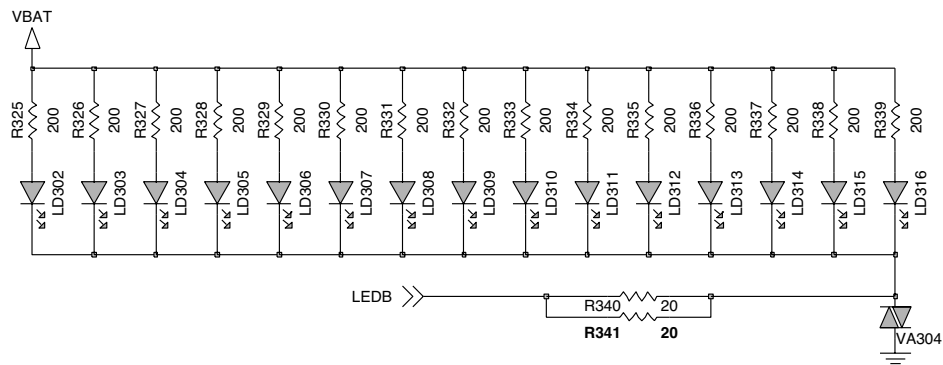


Figure 17. Keypad Back-light Scheme

3.5.14. LCD Illumination

There are 2 LEDs in the LCD module for LCD backlighting. MLED and SLED is connected driver ic of LCD module.

B/L LED DRIVER

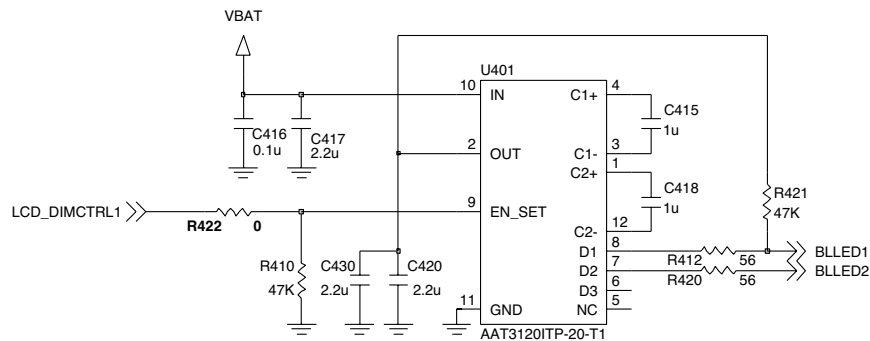


Figure 18. LCD Back-light Scheme

Microphone circuits

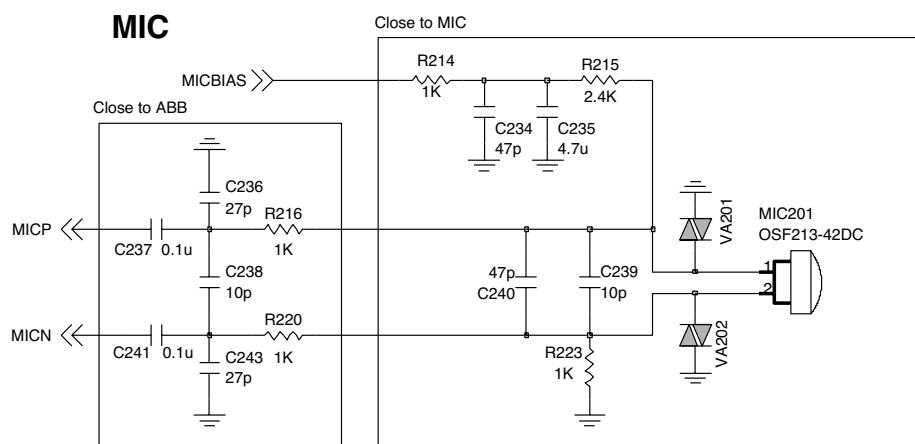


Figure 19. Microphone system

When a call is established, MICBIAS signal goes up to '2.5V' in the CG225. IOTA(ABB) provides both 2.0V and 2.5V for MICBIAS to circuit designer. VA201, VA202 are employed to enhance ESD immunity. Main Mic Circuit is same Upper MIC

Head set Jack Interface

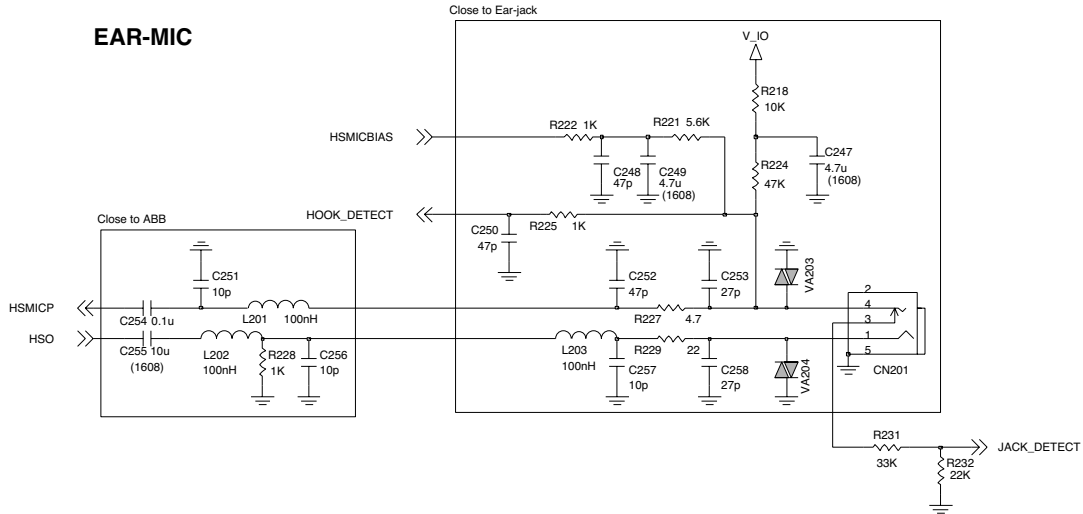


Figure 20. Ear-Jack interface

When ear-mic set or head set plug is inserted into the receptacle, JACK_DETECT signal which is input of ADIN4 in ABB changes from 'H' to 'L'. If hook button is pushed for a second to make a call, then HOOK_DETECT signal which is input of ADIN4 in ABB goes from 'H' to 'L'. Two signals are separated by the level of ADIN4 input port. If the level of ADIN4 is 0.00V ~ 0.14V, the pin means 'hook-detect' signal set, and if the level of ADIN4 is 0.14V ~ 1.60V, the pin means 'jack-detect' signal set. Also call end has same mechanism by pushing hook button on the Ear-microphone strap. Ordinarily detection of pushing hook button is established by signal de-bouncing for about 20ms.

3. H/W Circuit Description

MIDI SOUND circuit description

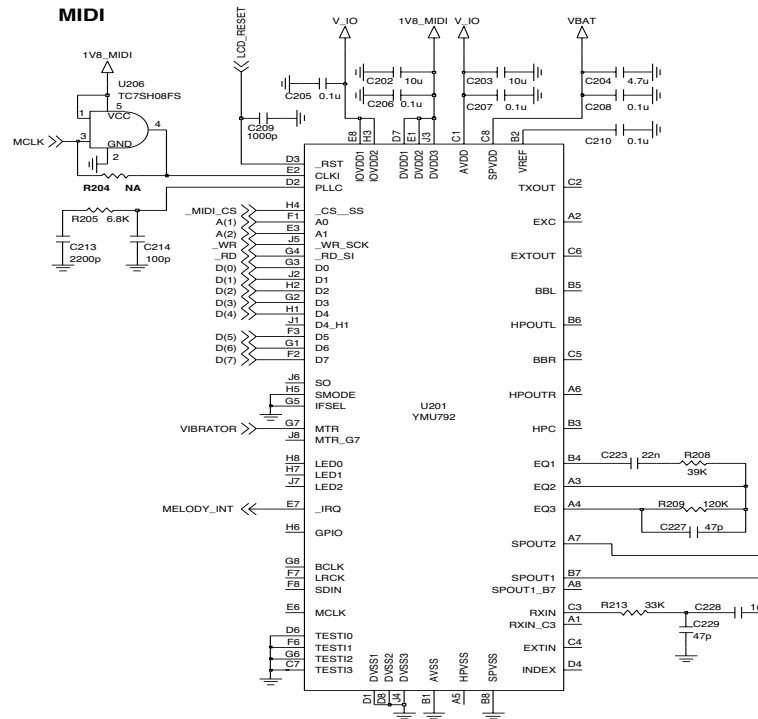


Figure 21. MIDI sound Circuit

The YM792 has features as described below.

- Simultaneous generation of up to 64 tones:
- Voice Synthesis function by HV Synthesizer.
- Time Fluctuation Low-pass Filter function by AL Synthesizer.
- ADPCM/PCM stream playback.
- Default voices for FM and Wave Table synthesizer are in a ROM, and voice registration to SRAM is possible.
- Digital Audio Input function. (Valid only for slave mode.)
- Digital Audio Output function. (Fixed to $F_s=48$ kHz. Valid only for master mode.)
- Speaker Amplifier and Equalizer circuit are integrated.
- Stereo head phone amplifier and bus boost circuit are integrated.
- External output amplifier is integrated.
- PLL is integrated. Master clock input up to 27 MHz is available. TCXO available
- 16-bit stereo D/A converter is integrated.

Receiver and Speaker circuit

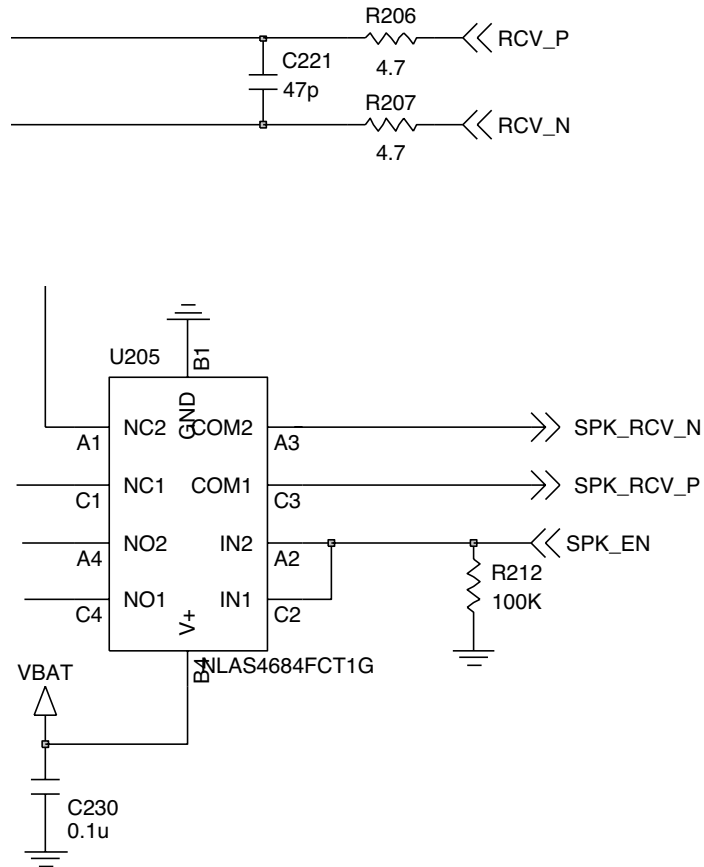


Figure 22. Receiver and Speaker Circuit of FPCB

A single analog switch is employed to support both voice and speaker phone mode with RCV_P. In the speaker phone mode the SPK_EN port sets 'H', then the RCV_P will be connected with MIDI sound path(NO) and operate as loud speaker. The other case, the SPK_EN port will remain 'L' state and RCV_P will be connected with receiver path EAR_P(NC)

3. H/W Circuit Description

3.5.16. Camera Circuit

Under camera action mode, MV3018SNK wholly controls LCD by itself to execute camera functions, while, under bypass mode, MV3018SNK lets all LCD driver-related signals bypass it, as if it does not exist at all in the system.

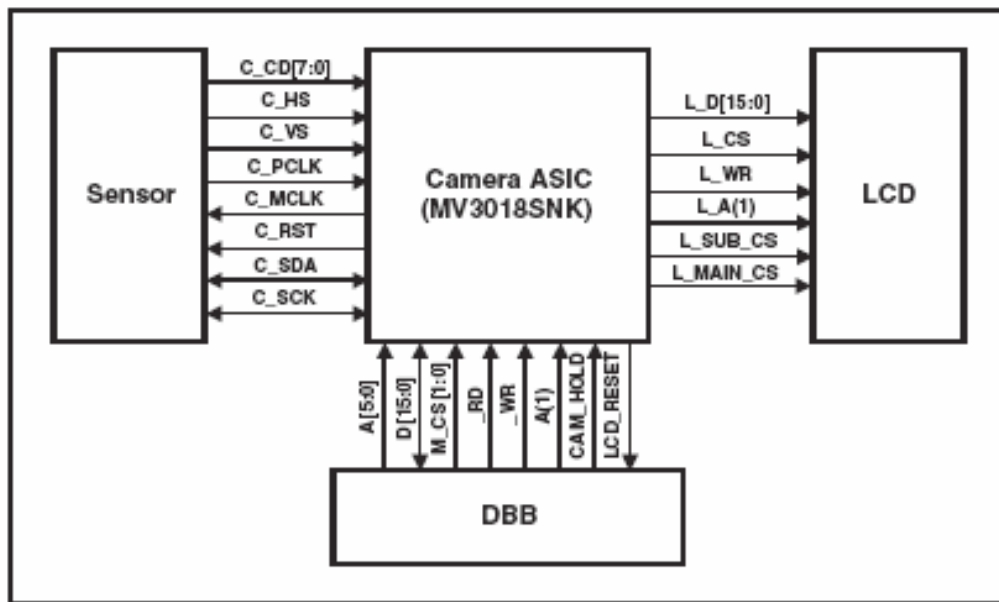


Figure 23. Camera Circuit Block Diagram

General description of MV3018SNK Camera chipset.

- External Clock Source Up to 24 MHz
- Support Standard SRAM Interface (6bit Address & 16bit Data) for CPU Interface
- 1 Mbit SRAM
- Support LCD Signal By-pass Mode
- Support three General Port IO
- 8 x 8 81pin CABGA Package

3. H/W Circuit Description

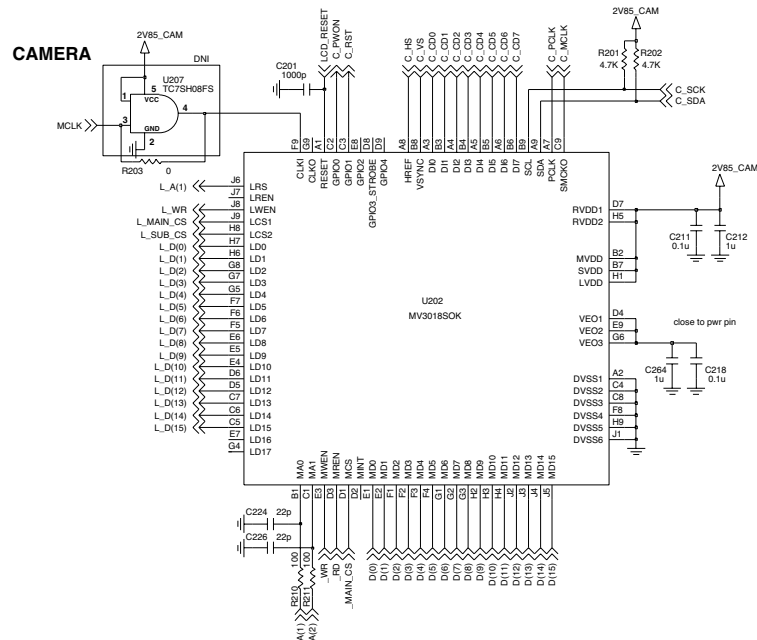


Figure 24. MV3018SNK Camera Chip Circuit

3.5.17. CAMERA Power

0.3M Pixel Camera use 2.8V

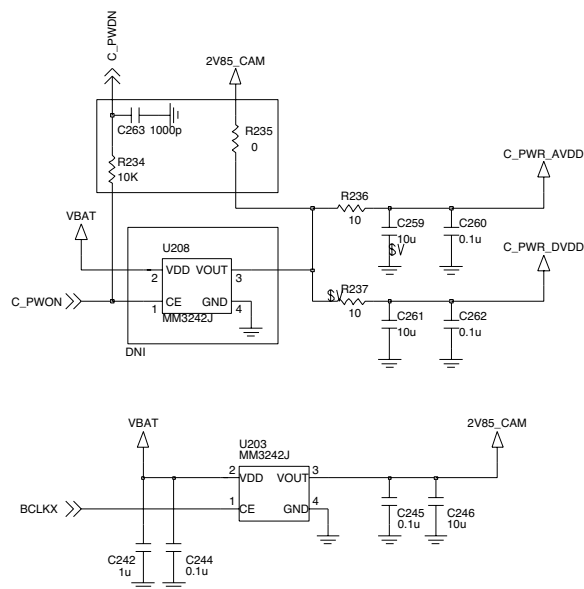


Figure 25. Camera Power Scheme

3. H/W Circuit Description

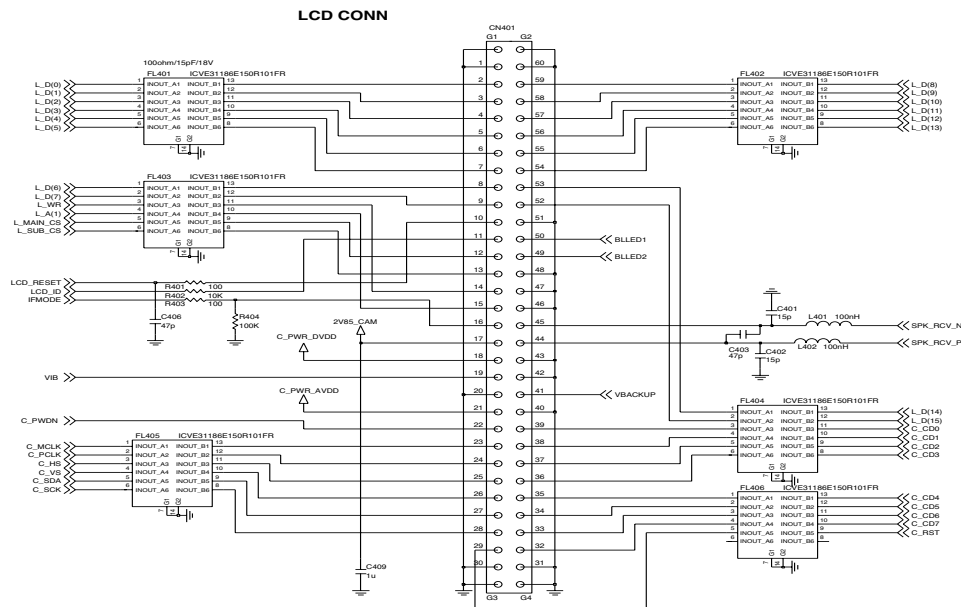


Figure 26. LCD Connection thru Camera chip

3.5.18 CMOS Image Sensor

General description of CIS Camera Module

- VGA resolution
- 5.04mm x 5.04mm active square pixel
- 1/4.5 inch optical format
- Bayer RGB color filter array
- Micro-lens for high sensitivity
- Low Power Operation : Voltage Range : 2.6V - 3.0V
- Max Frame rate : 30 frame/s at 25Mhz Master Clock (VGA)
- Package Types : CLCC 40LD, COB(Chip-on-Board), COF(Chip-on-Flex)
- 10-bit Digital Image Signal Data Bus
- Low Fixed Pattern Noise by Correlated Double Sampling
- Controllable full function through standard IIC bus
- External Power Down
- Programmable Power Down mode
- Auto Black level compensation
- Flexible exposure time control
- Strobe Control Signal generation for frame capture mode
- Programmable Video Windowing
- Integrated 10bit Analog to Digital Conversion
- Programmable Frame Rate up to 30frame/sec

FPCB

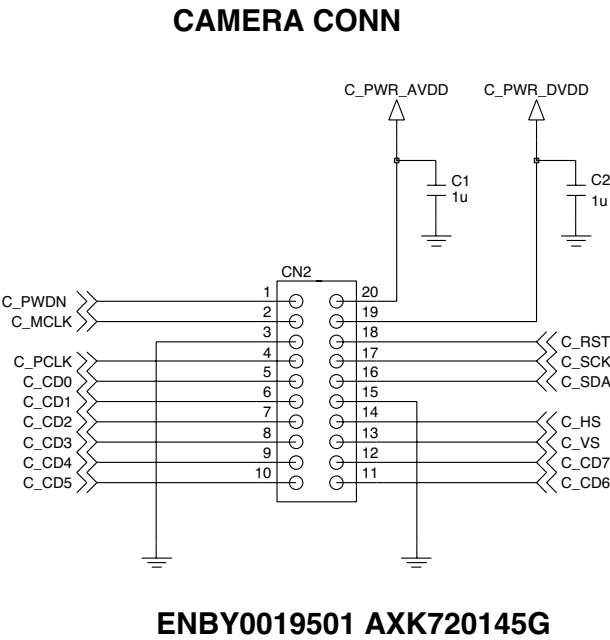
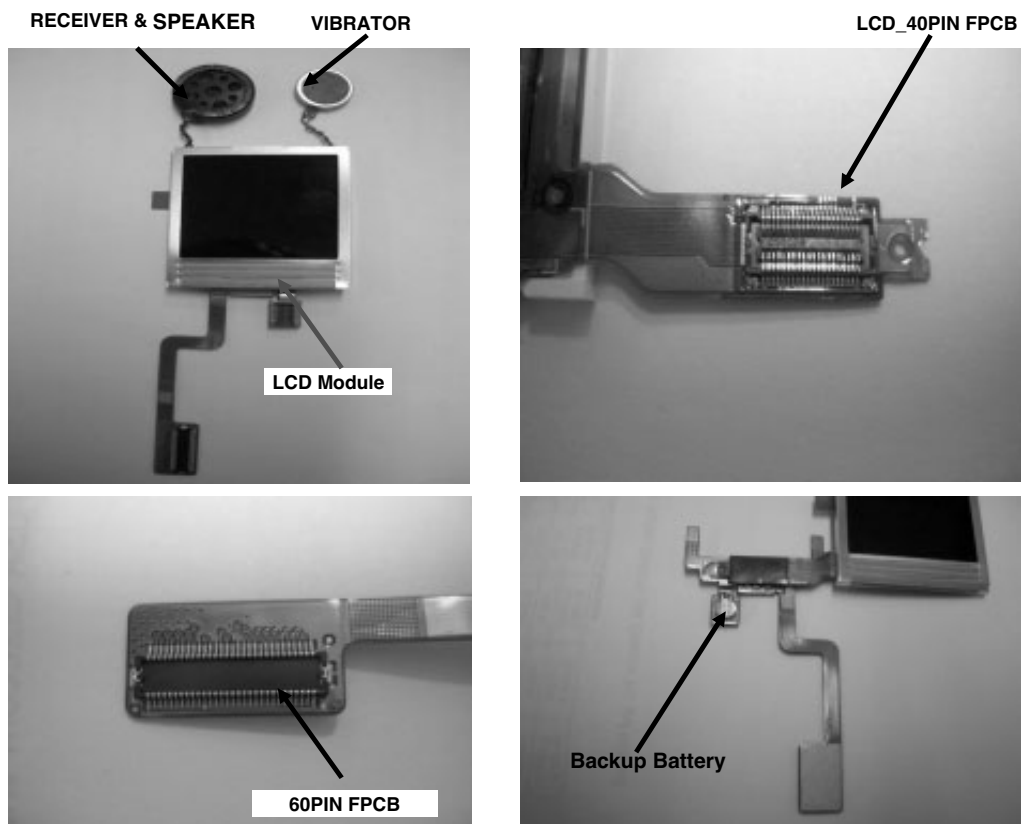
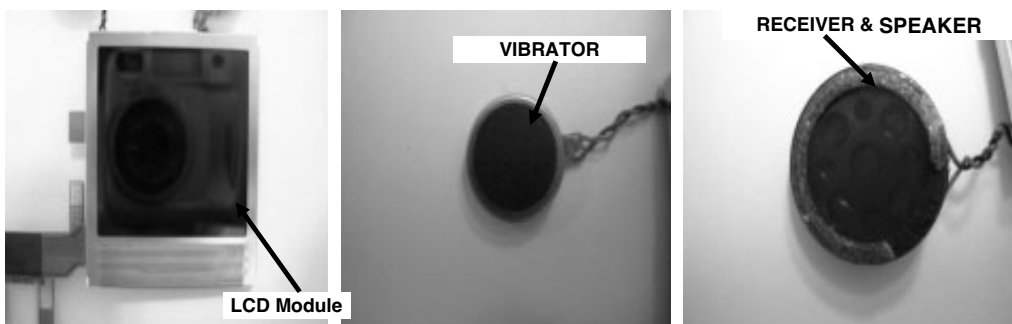


Figure 27. FPCB Camera Connection

4.2 FPCB Components Placement



4.3 Baseband Components



4. TROUBLE SHOOTING

4.4 Main Components (Description)

MAIN

U304	Folder Switch	MIC201	Microphone
CN401	LCD connector	CN201	Ear-Mic jack
U401	LCD Back Light LED charge pump	CN401	IO connector
SW501	RF Mobile switch	U502	RF Trnaceiver
F400	Quad FEM	U501	Power Amplifier Module
U404	CMOS INVERTER	U101	Analog Base Band (IOTA)
X401	XTAL 26MHz	X101	XTAL 32.768KHz
U201	MIDI chip(64poly)	U101	Digital Base Band(Calypso)
U205	DUAL SPDT ANALOG SWITCHES		
CN403	SIM Connector		
U301	Memory(Flash 128Mbit/SRAM 64Mbit)		

UPPER

SPK	Speaker/Receiver	CN1	LCD 40Pin connect
VIB	Vibrator	CN2	Camera 20Pin connect
RCV	Receiver	CN3	Main_Upper 60pin Connect
BAT	Backup Battery	LD1	Flash LED

4.5 Power On Trouble

4.5.1 Power On Sequence

Connecting Battery

- Power-On Key Detection
- PWON signal goes to ABB and then ABB reset DBB by ON_OFF signal
- ON_OFF turn low(1.5V) to HIGH(2.8V) and it resets Calypso

4.5.2 Check Points

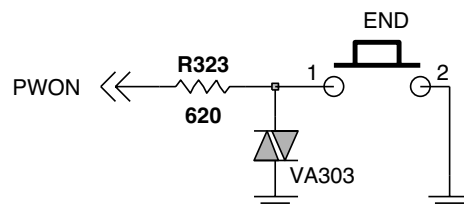
- Battery Voltage
- Power-On Key Detection (PWON signal)
- Outputs of LDOs

4.5.3 Trouble Shooting Setup

- Connect PIF-UNION to the phone
- Set the TI-remote switch PIF-UNION off

4.5.4 Trouble Shooting Procedure

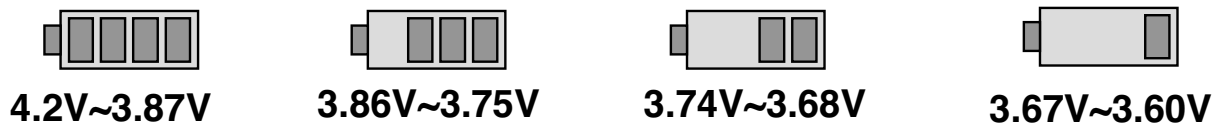
- Check Battery voltage
- END_KEY Dome Switch condition
- Check the output voltages of all LDOs



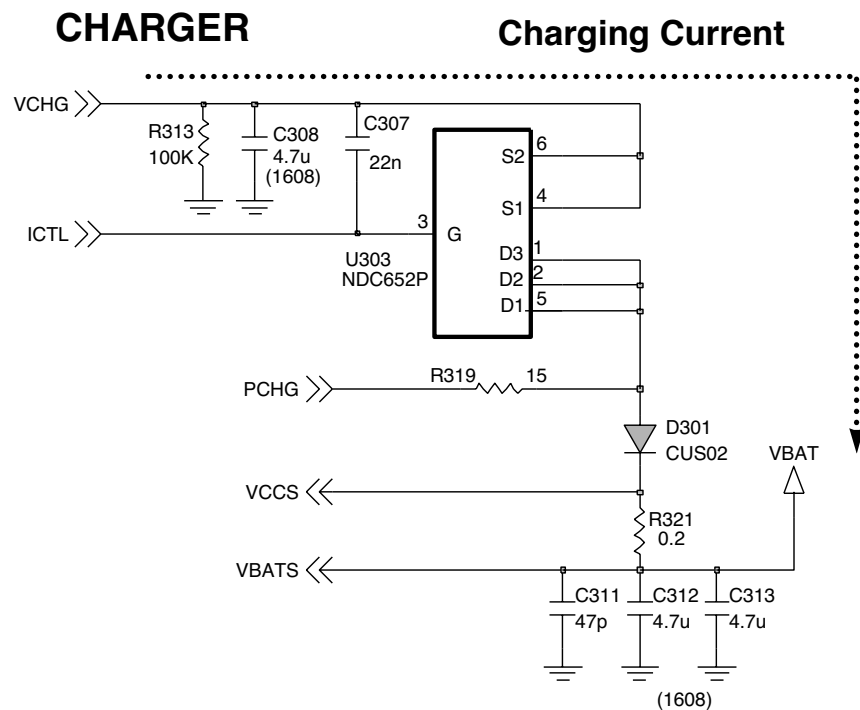
4. TROUBLE SHOOTING

4.6 Charging Trouble

- Charging method : CC-CV
- Charger detect voltage : about 5.2V
- Charging time : 3h min under
- Charging current : 550mA
- Cutoff current : 120mA
- Low battery alarm
 - Idle : 3.55V
 - Dedicated : 3.59V
- Switch-off voltage : 3.35V
- Charging temperature ADC range
 - $\sim -20^{\circ}\text{C}$: small charging operation.
 - $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$: charging.
 - $60^{\circ}\text{C} \sim$: not charging operation small charging operation.



Block Diagram



4. TROUBLE SHOOTING

Charging Procedure

- Connecting TA & Charger Detection
- Control the charging Current by ABB
- Charging Current flows into the Battery

Check Points

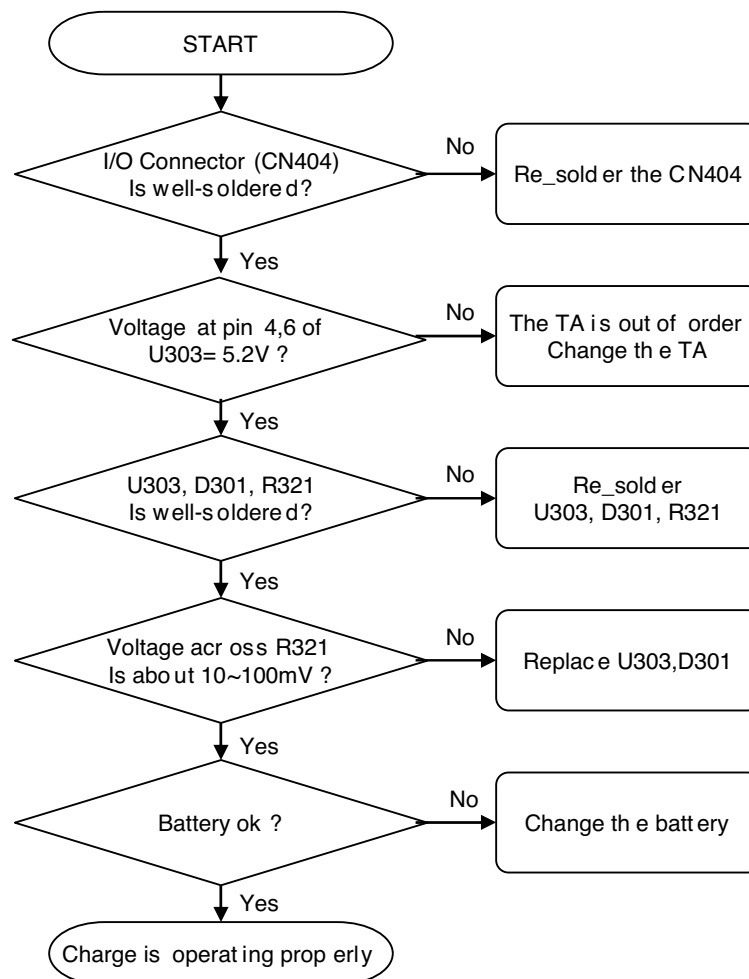
- Connection of TA
- Charging Current Path
- Battery

Trouble Shooting Setup

- Connect Battery & TA to the handset.

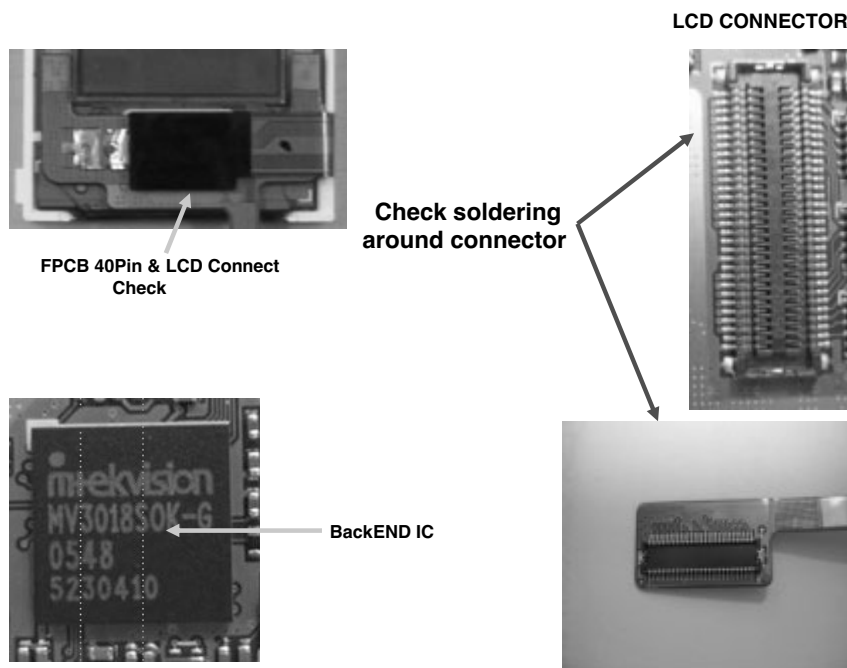
Trouble Shooting Procedure

- Check the charger connector.
- Check the charging current path.
- Check the battery



4. TROUBLE SHOOTING

4.7 LCD Display Trouble



LCD Control Signals From Main Board

- MLED , L_MAIN_CS, L_SUB_CS ,LCD_RESET, L_WR, LCD_ID
- L_A(1), L_D(0)~L_D(15), IFMODE

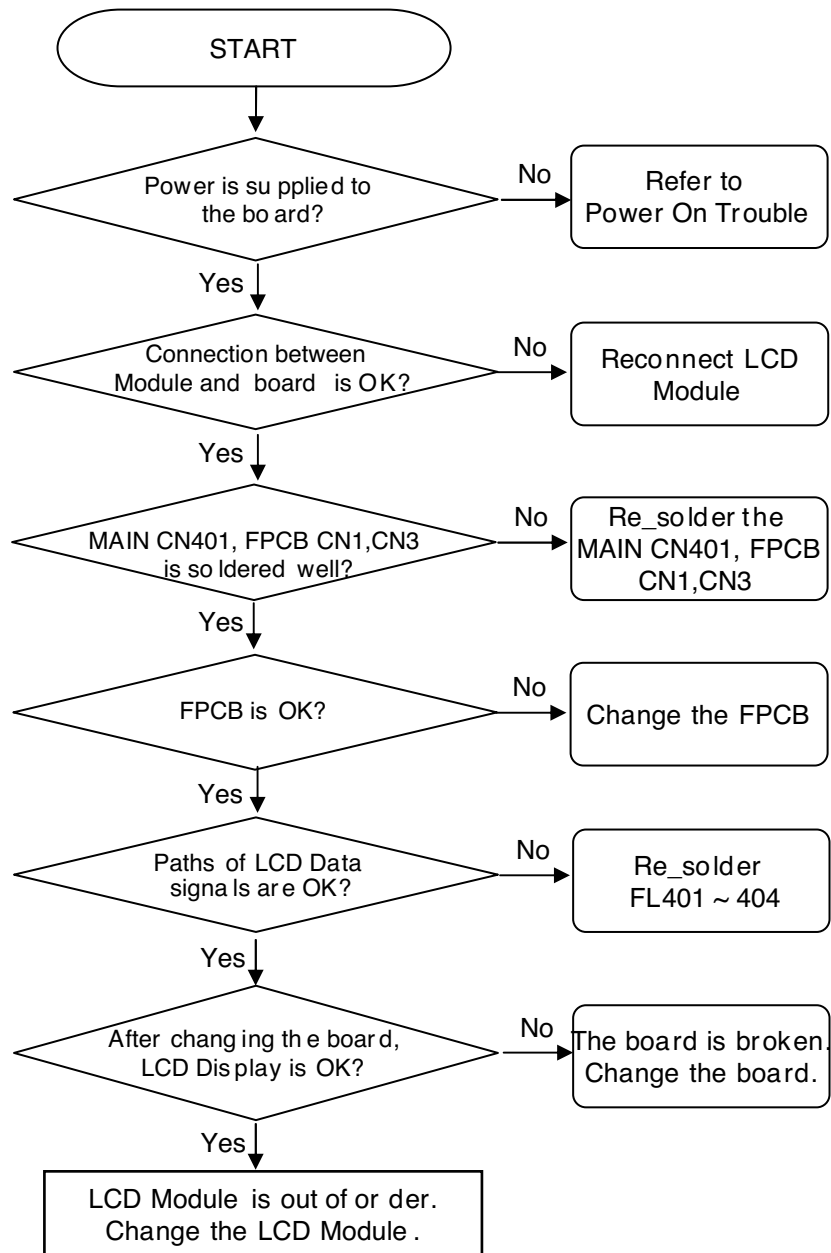
Check Points

- The Assembly status of the LCD Module.
- The Soldering of connectors
- The FPCB which connects the LCD module with the main board.
- BackEND IC Soldering

Trouble Shooting Setup

- Connect PIF, and power on

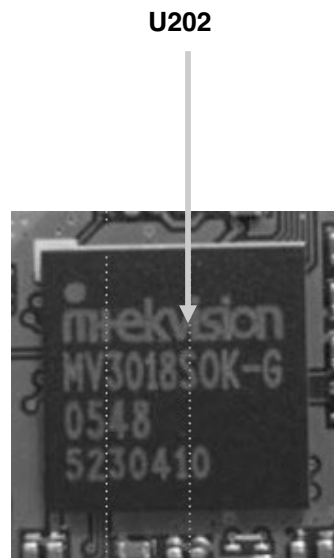
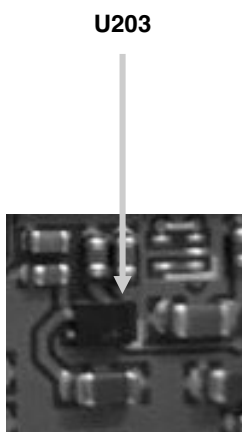
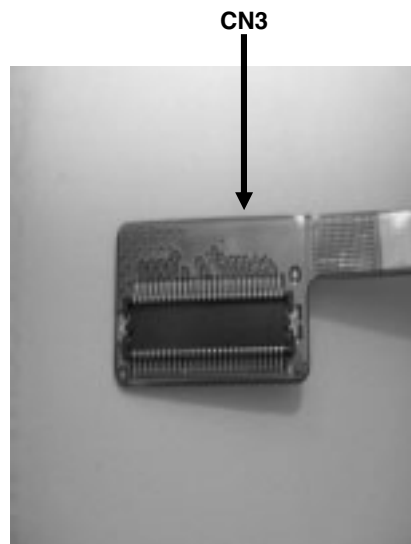
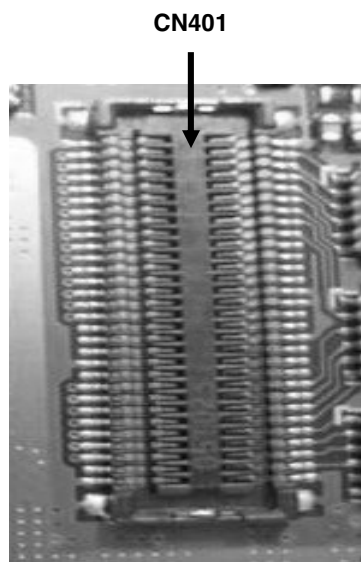
4. TROUBLE SHOOTING



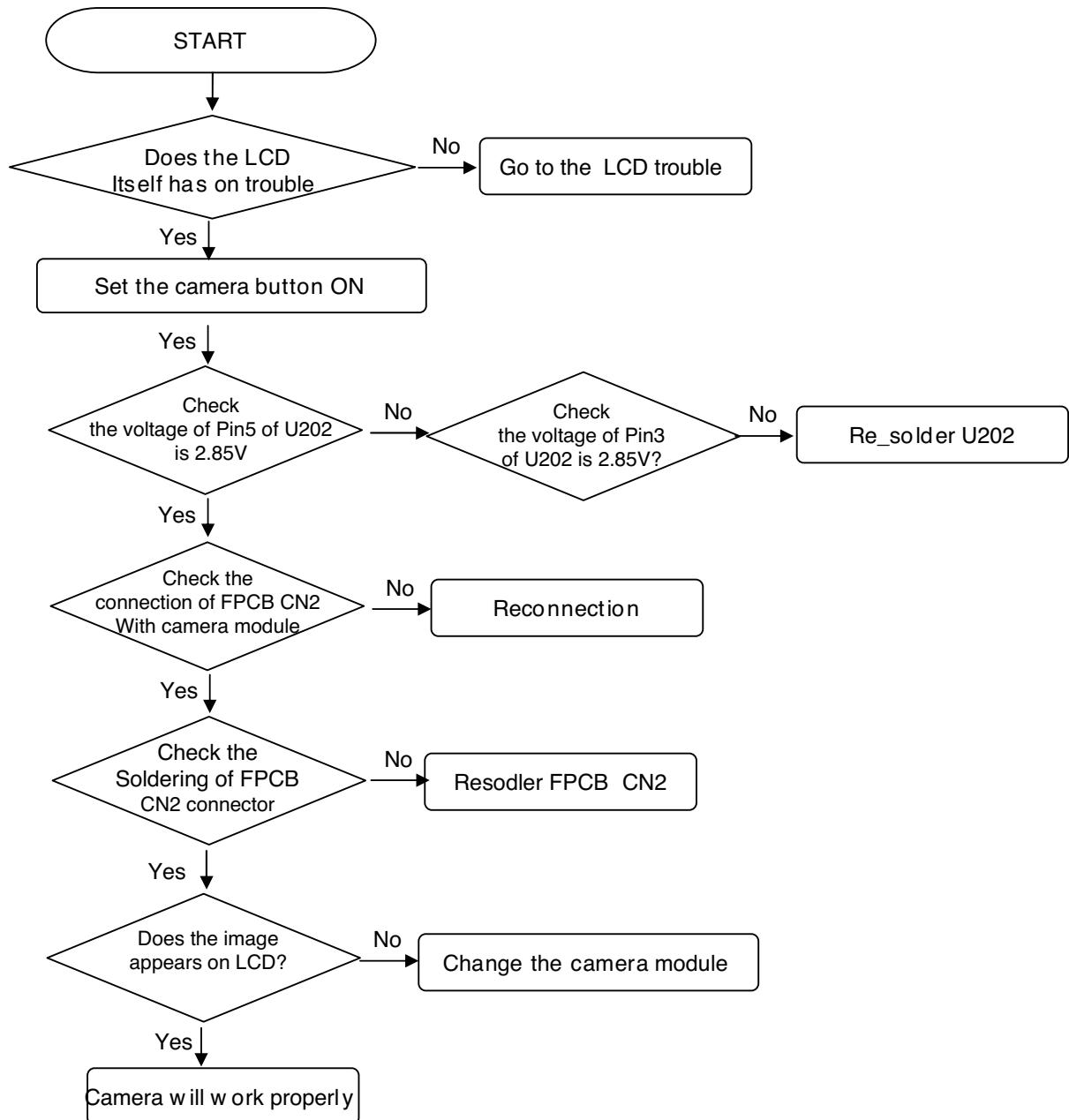
4. TROUBLE SHOOTING

4.8 Camera Trouble

SETTING : Connect PIF, and remote switch ON at PIF

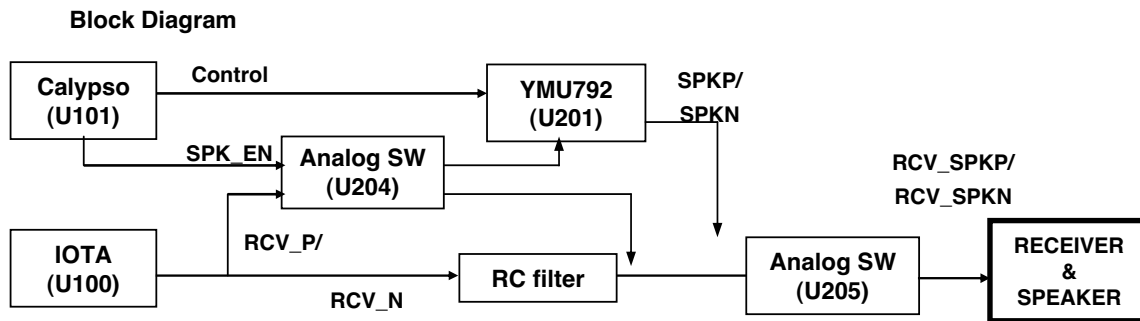


4. TROUBLE SHOOTING



4. TROUBLE SHOOTING

4.9 Receiver Trouble



Melody Generation

- U201 (YMU792, MIDI) is controlled by DBB.
- U201 generates 64poly MIDI sound and it is delivered to the speaker

Signals to the receiver

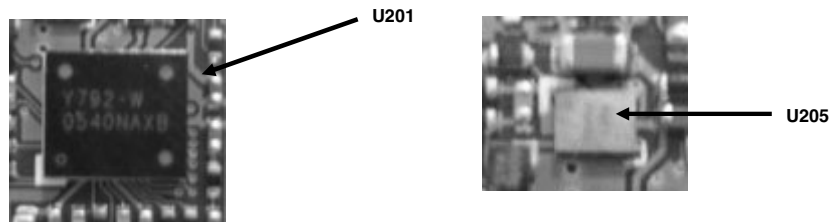
- EAR_N, EAR_P From ABB
- EAR_N, EAR_P are delivered to Receiver

Check Points

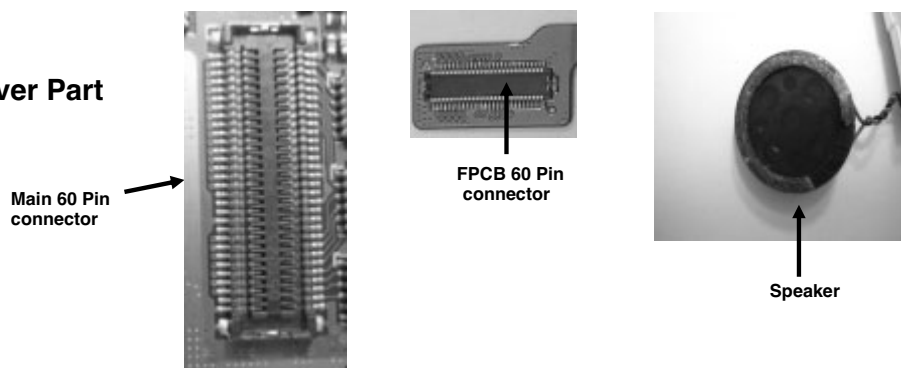
- Audio signals from ABB
- Audio signals to the receiver
- Audio signal path
- Check the sound level to the speaker.
- Soldering of connectors, speaker and receiver
- Speaker

4. TROUBLE SHOOTING

Speaker Part



Receiver Part



Receiver Trouble Shooting Setup

- Initialize GSM MS test equipment.
- Connect PIF-UNION and power on.
- Make a test call to 112.
- Set audio part at test equipment as PRBS or continuous wave, not echo.
- Set the audio volume max.

Trouble shooting Procedure

- Check the audio signal levels at each point.
- Check the soldering of the connector.
- Check the soldering of the receiver.
- Check the receiver.
- Check receiver cable states.

Speaker Trouble Shooting Setup

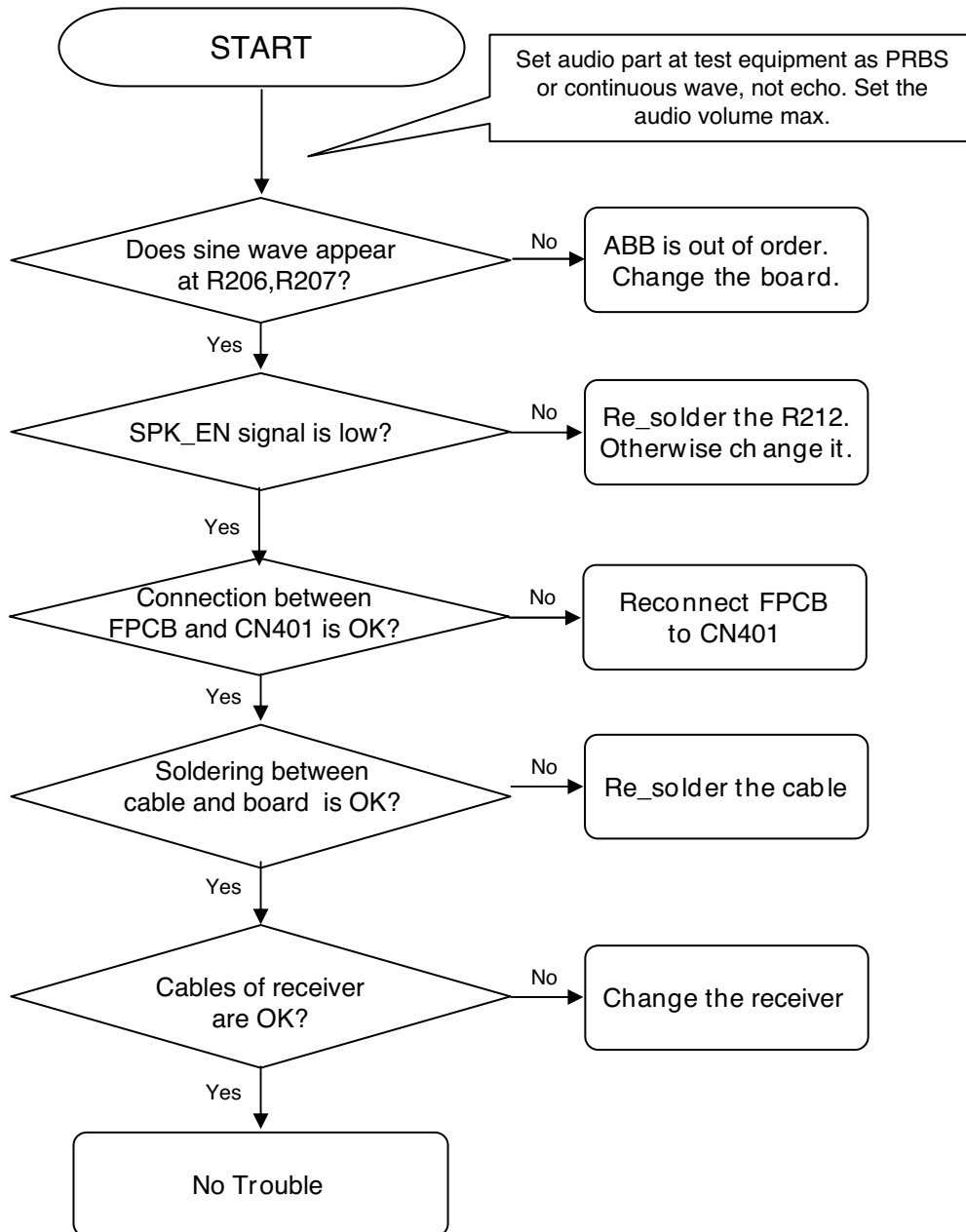
- Connect PIF to the phone, and power on.
- Enter the engineering mode, and go to menu “Baseband → Alert → Ring”

Trouble Shooting Procedure

- Check the voltage levels of power supplies.
- Check all sound path.
- Check the sound level to the speaker.
- Check the speaker and the soldering.

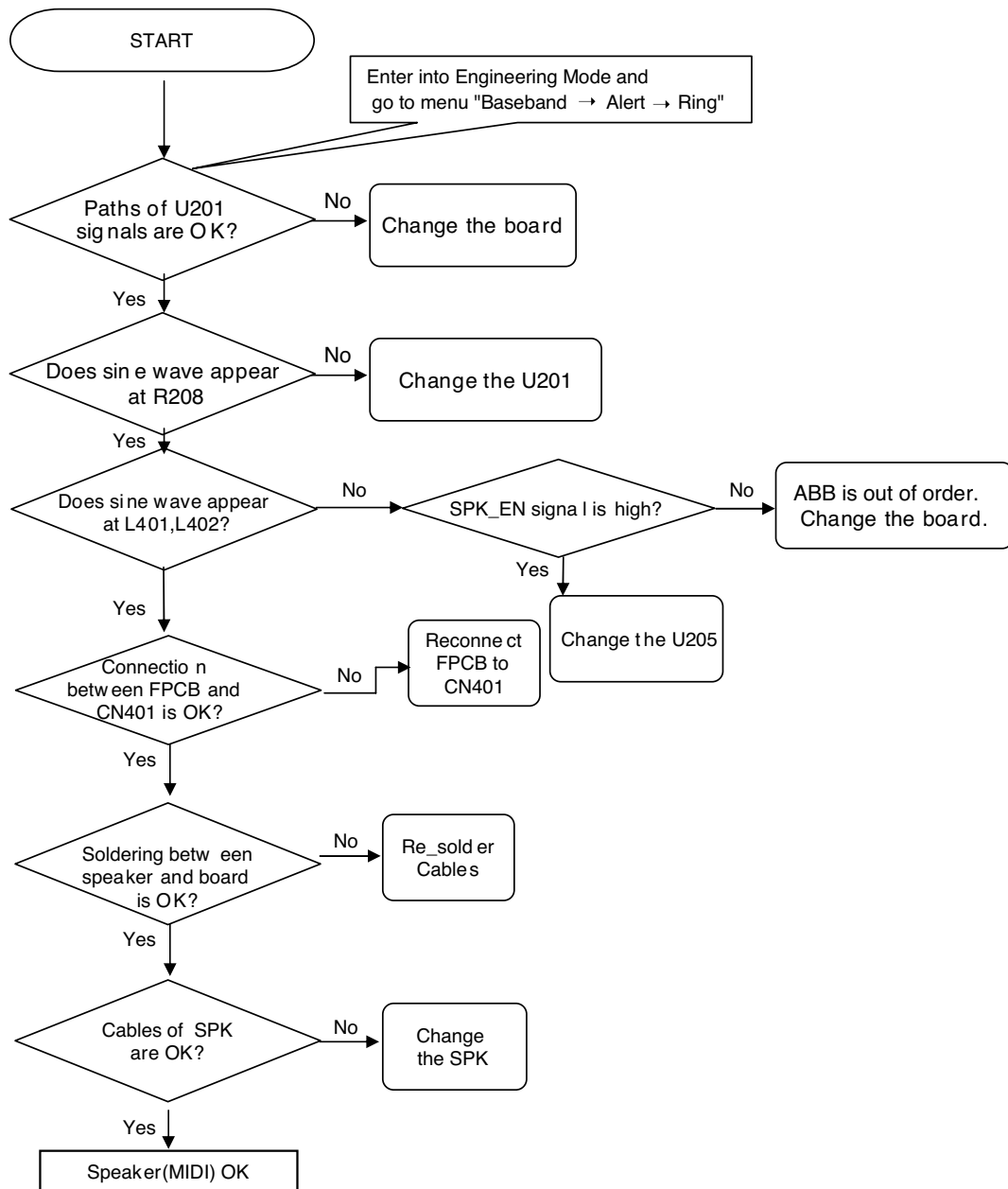
4. TROUBLE SHOOTING

4.9.1. Receiver Trouble



4.9.2. Speaker(MIDI) Trouble

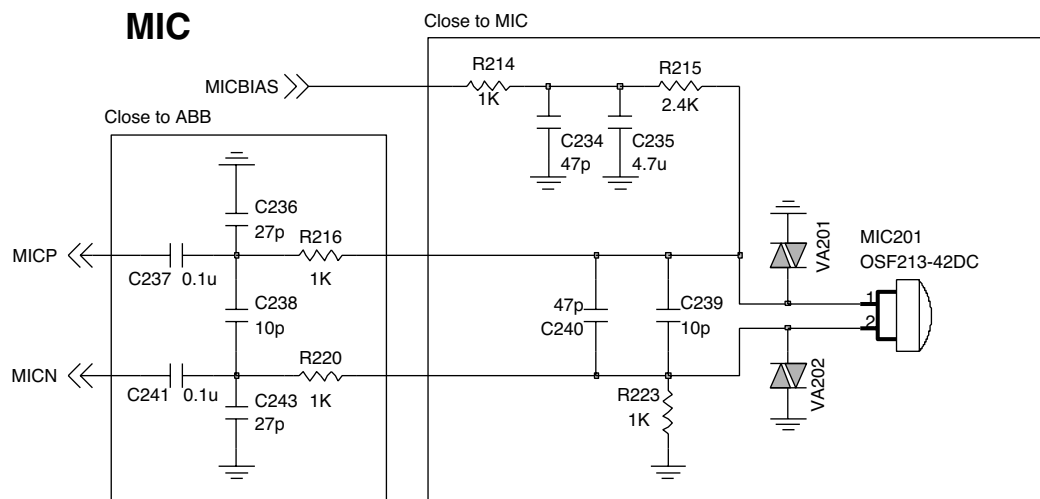
SPK_EN Operating
0 Receiver Only
1 MIDI or SPK mode



4. TROUBLE SHOOTING

4.10 Microphone Trouble

Circuit Diagram



4. TROUBLE SHOOTING

Microphone Signal Flow

- MIC is enable by MICBIAS
- MICBIAS, MICP, MICN signals to ABB

Check Points

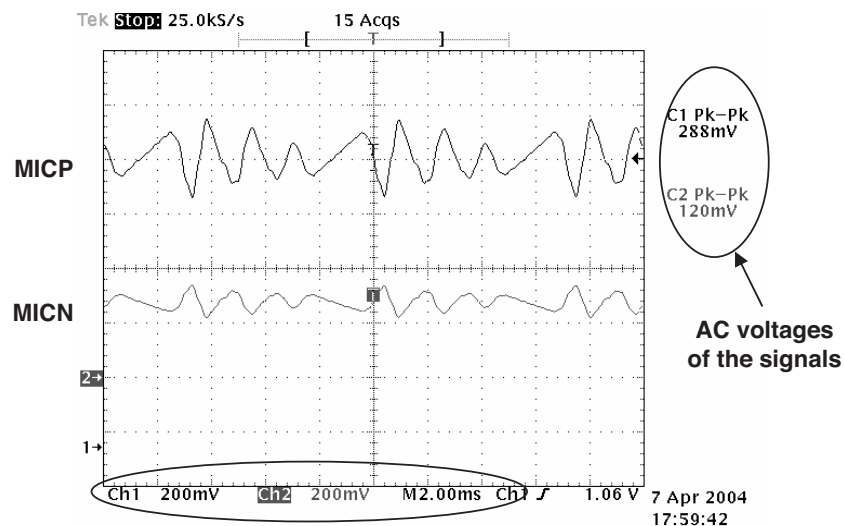
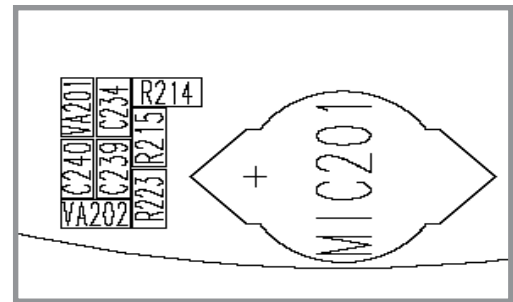
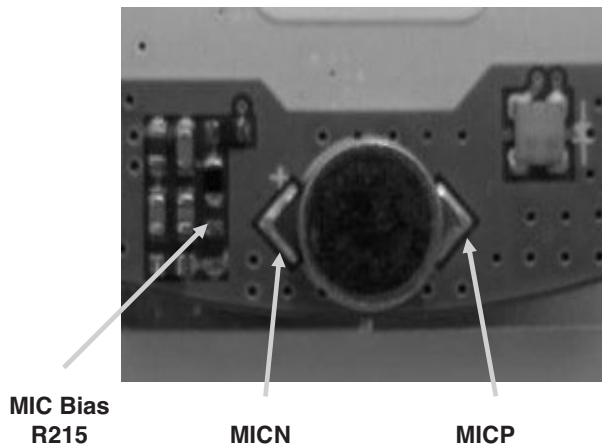
- Microphone bias
- Audio signal level of the microphone
- Soldering of components

Trouble Shooting Setup

- Initialize GSM MS test equipment.
- Connect PIF-UNION to the phone, and power on.
- Make a test call to 112.
- Make a sound in front of the microphone

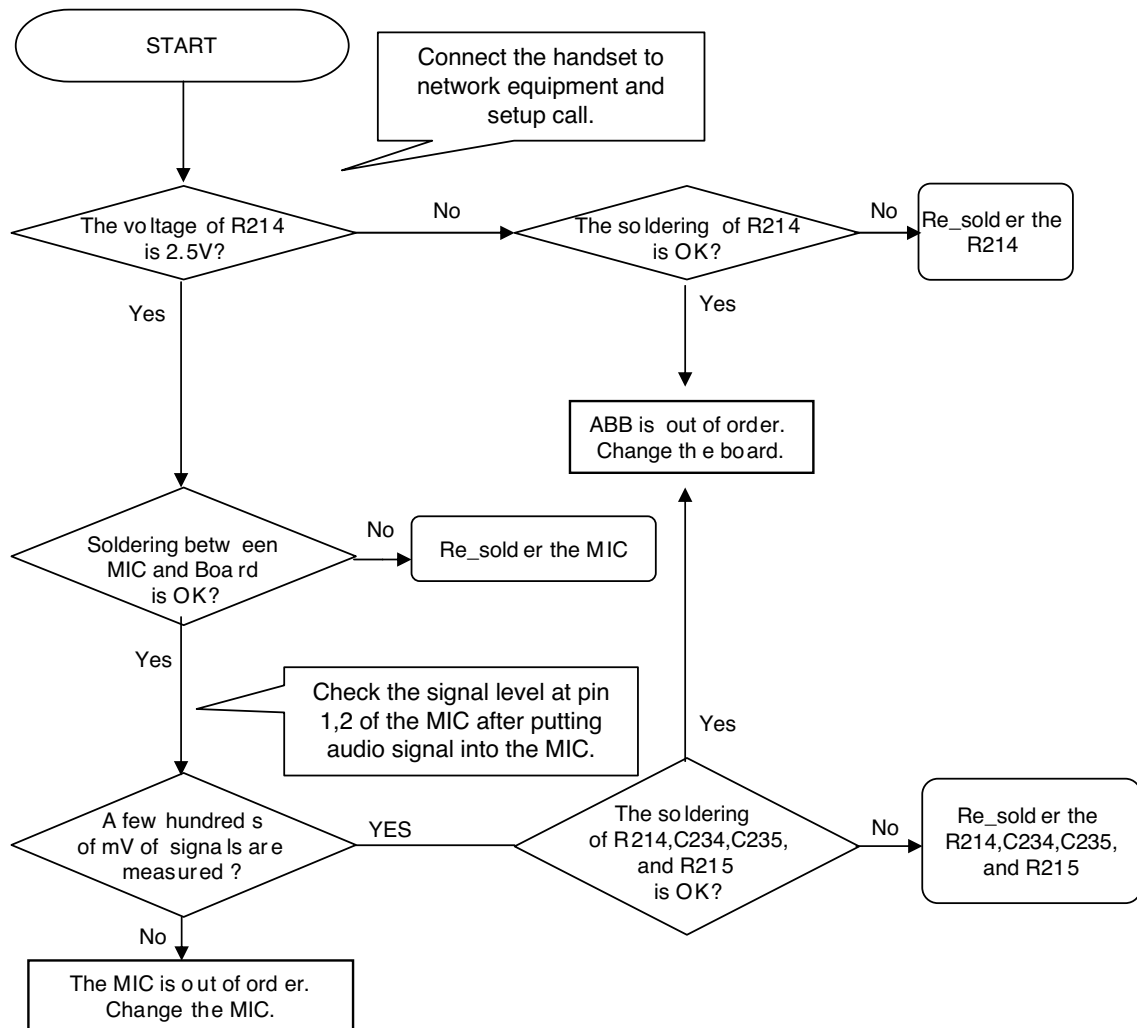
Trouble Shooting Procedure

- Check the bias of the microphone.
- Check the audio signal path.
- Check the soldering.
- Check the microphone.
- Check the operation of FPCB



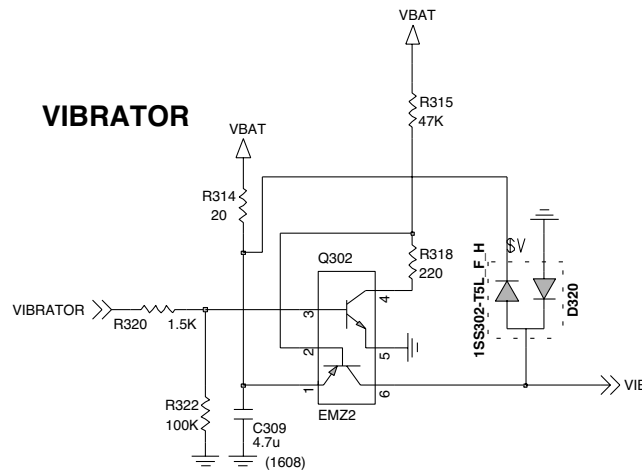
The waveforms at MICP and MICN

4. TROUBLE SHOOTING



4.11 Vibrator Trouble

Block Diagram



Vibrator Operation

- Vibrator is controlled by DBB GPIO
- When vibrator signal is high, vibrator is enabled

Check Points

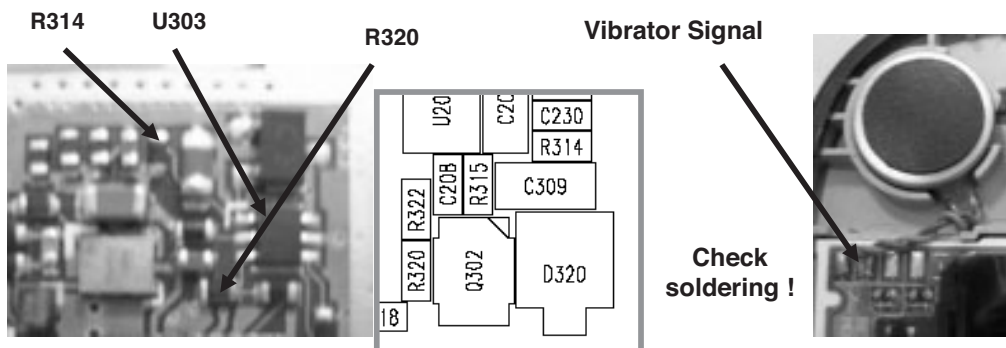
- VCC lines (VBAT) of U303
- Vibrator signal path
- The connection between the main board and vibrator module
- The soldering of socket
- The Vibrator (t=2.7mm)

Trouble Shooting Setup

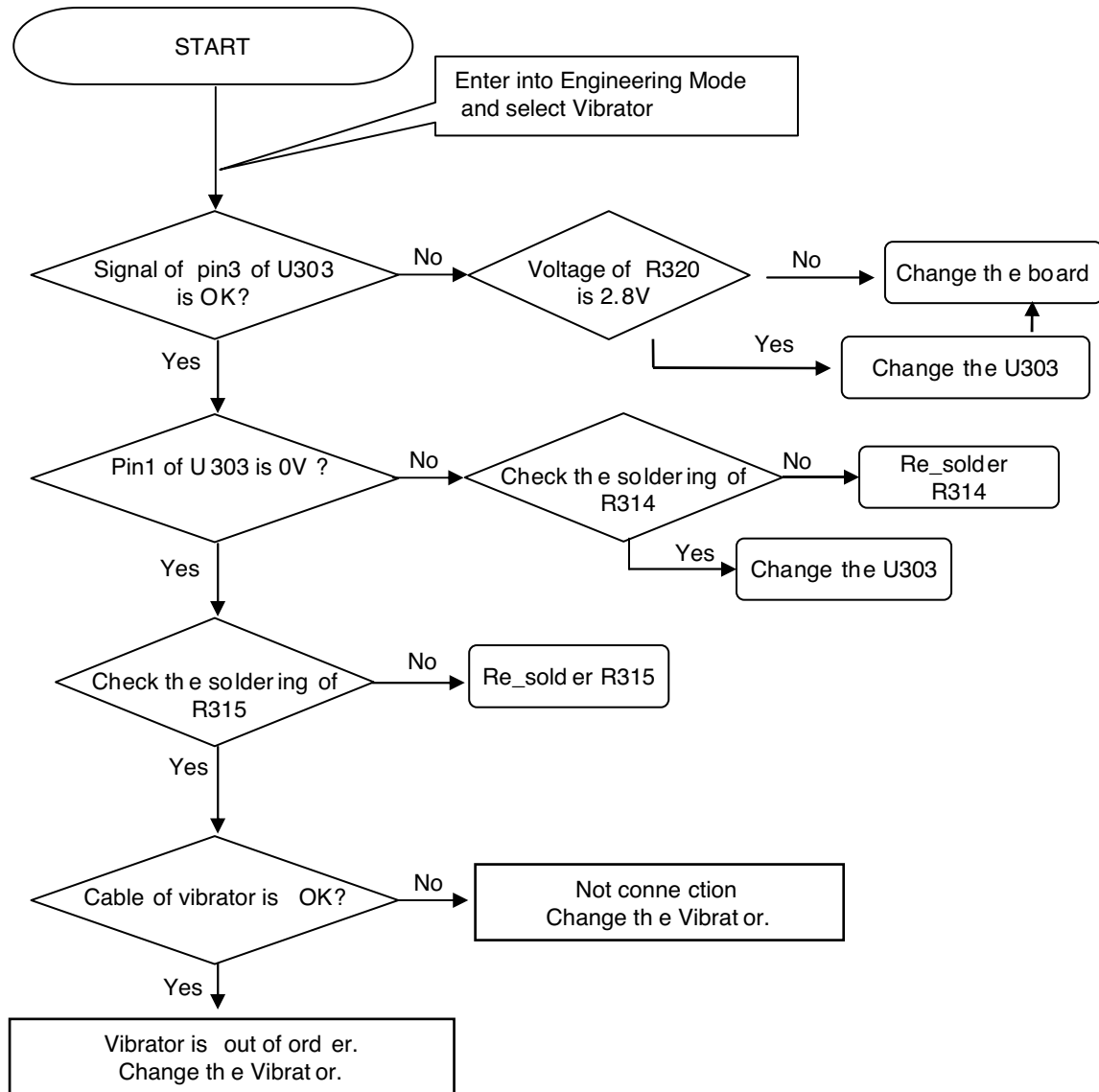
- Connect PIF to the phone, and power on.
- Enter the engineering mode.
- Go to menu "Baseband → Alert → Vibrator"

Trouble Shooting Procedure

- Check vibrator signal
- Check soldering of components
- Check connection of cable-to-socket
- Check vibrator PORON thickness



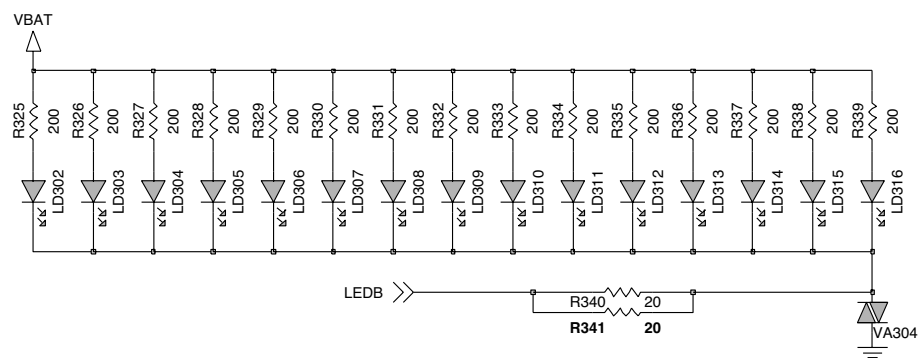
4. TROUBLE SHOOTING



4.12 Keypad Backlight Trouble

Block Diagram

KEY BACKLIGHT



Backlight Operation

- The keypad LED backlight is controlled with LEDB signal.
- Keypad_Main signal from DBB.
- The LEDs are forward biased and turned on.

Trouble Shooting Setup

- Connect PIF-UNION to the phone, and power on.
- Enter the engineering mode.
- Go to menu. "Baseband → LED → Backlight → Keypad on"

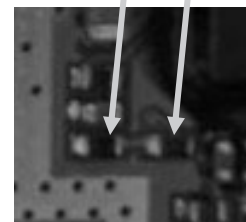
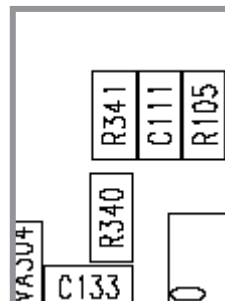
Trouble Shooting Procedure

- Check the soldering of components
- Check the LEDB signal
- Check LEDs

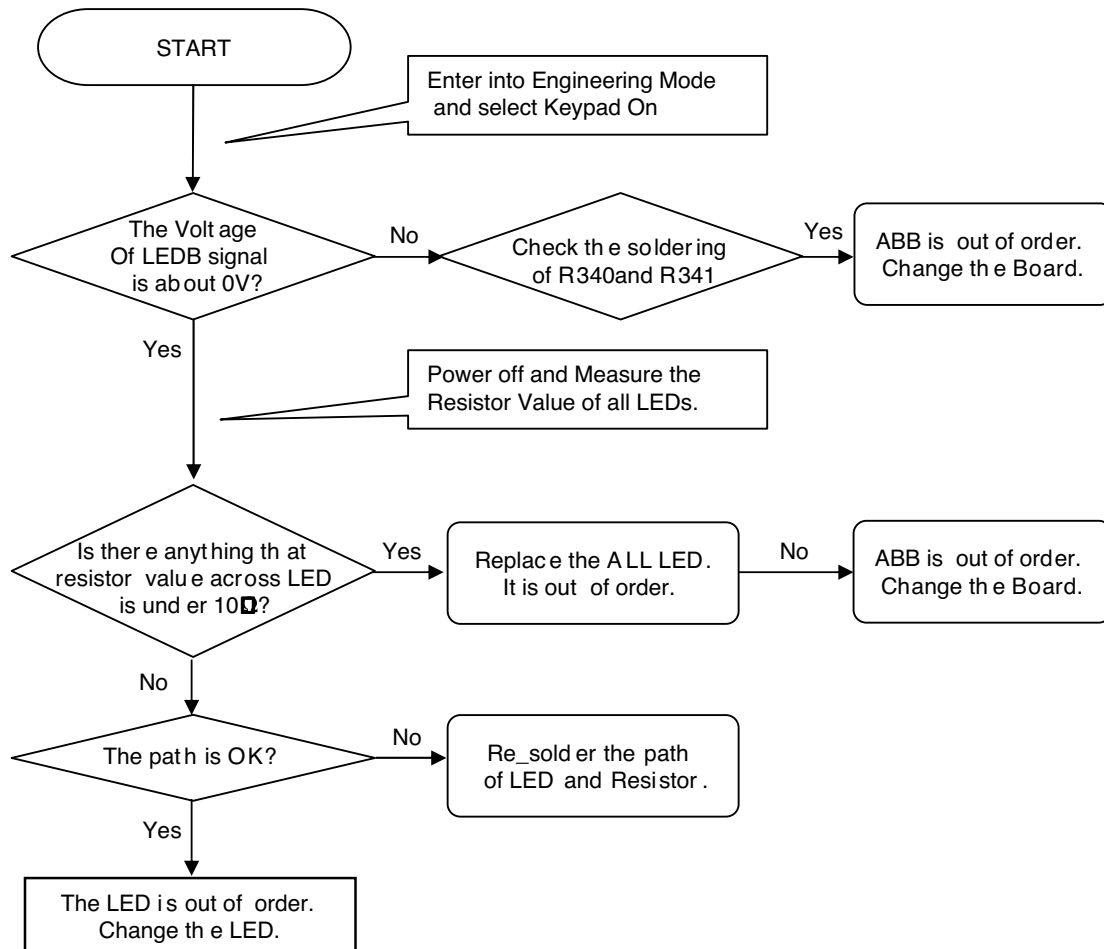
Check Points

- LEDB signal
- LEDs

Check
KEY_LED signal
R341,R340



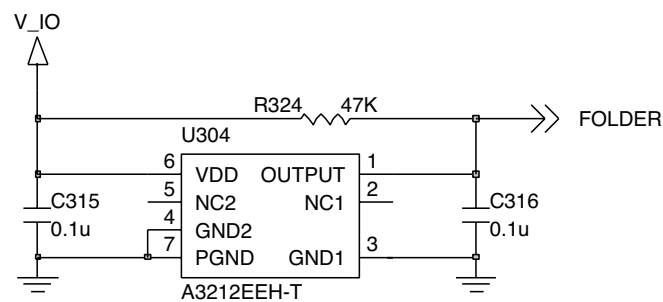
4. TROUBLE SHOOTING



4.13 Folder ON/OFF Trouble

Block Diagram

FOLDER SWITCH



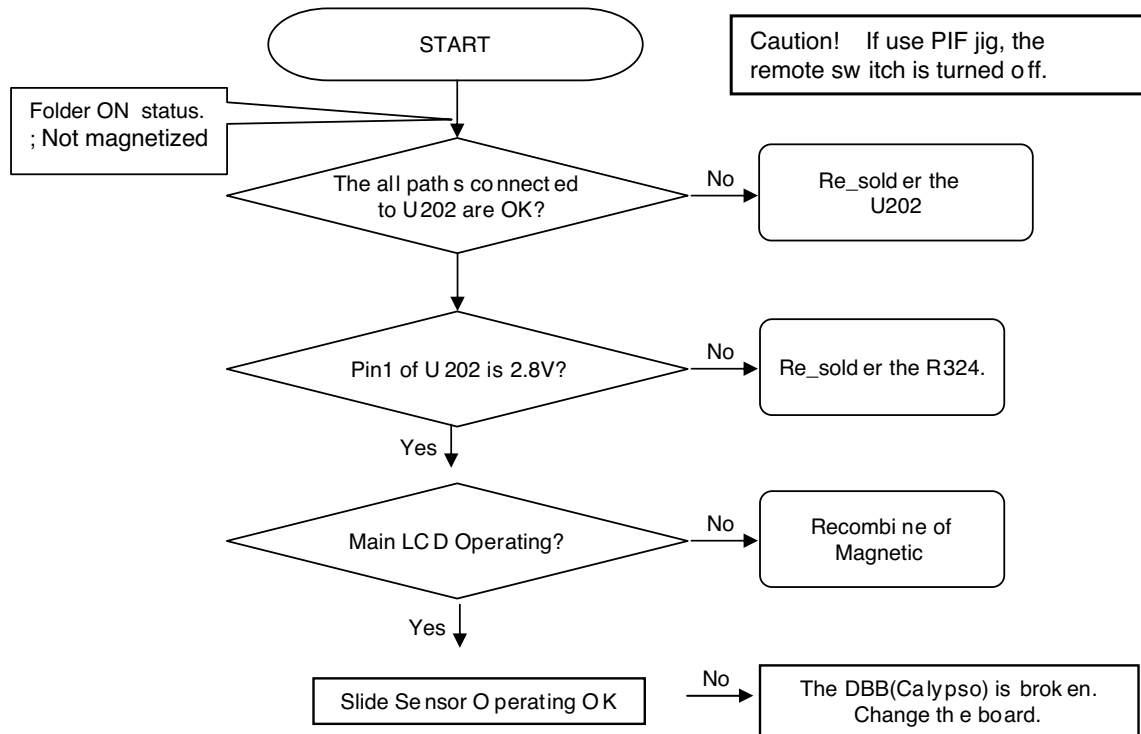
Slide Operation

- There is a magnet to detect the Slide status, up or down.
- If a magnet is close to the Folder Switch(U304), the voltage at pin 2 of U304 goes to 0V. Otherwise, 2V8_IO.
- This Folder signal is delivered to DBB, and the status of Folder is reported.

Slide Signal Status

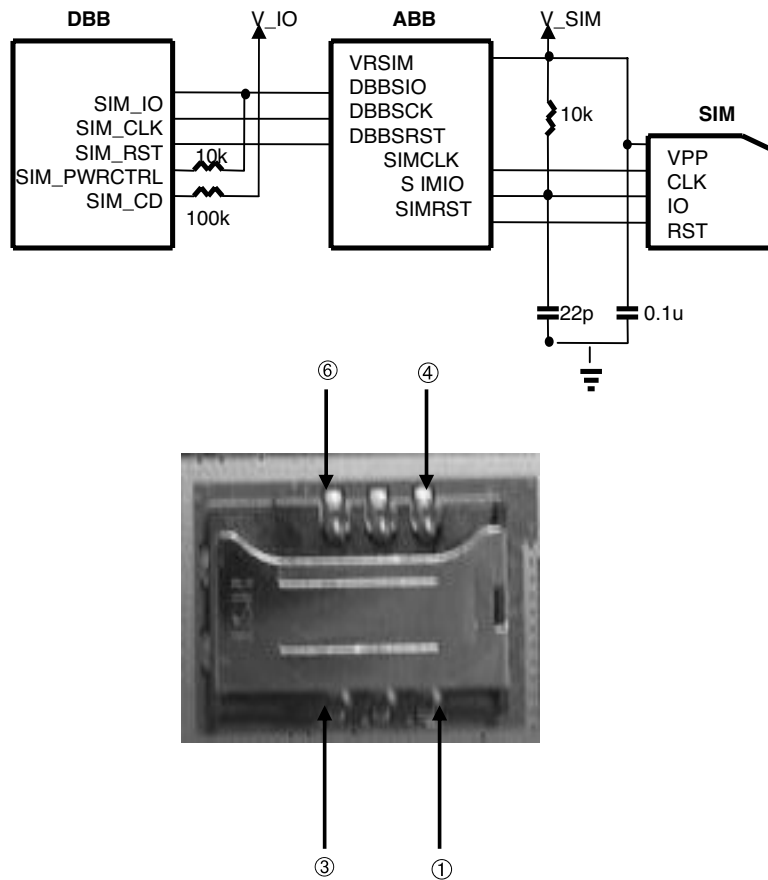
- L : Down (Magnetized)
- H : Up (Not magnetized)

4. TROUBLE SHOOTING



4.14 SIM Detect Trouble

Block Diagram



Connection between SIM and DBB

- SIM_CLK, SIM_IO, SIM_RST

Trouble Shooting Setup

- Insert the SIM into socket
- Connect PIF to the phone, and power on.

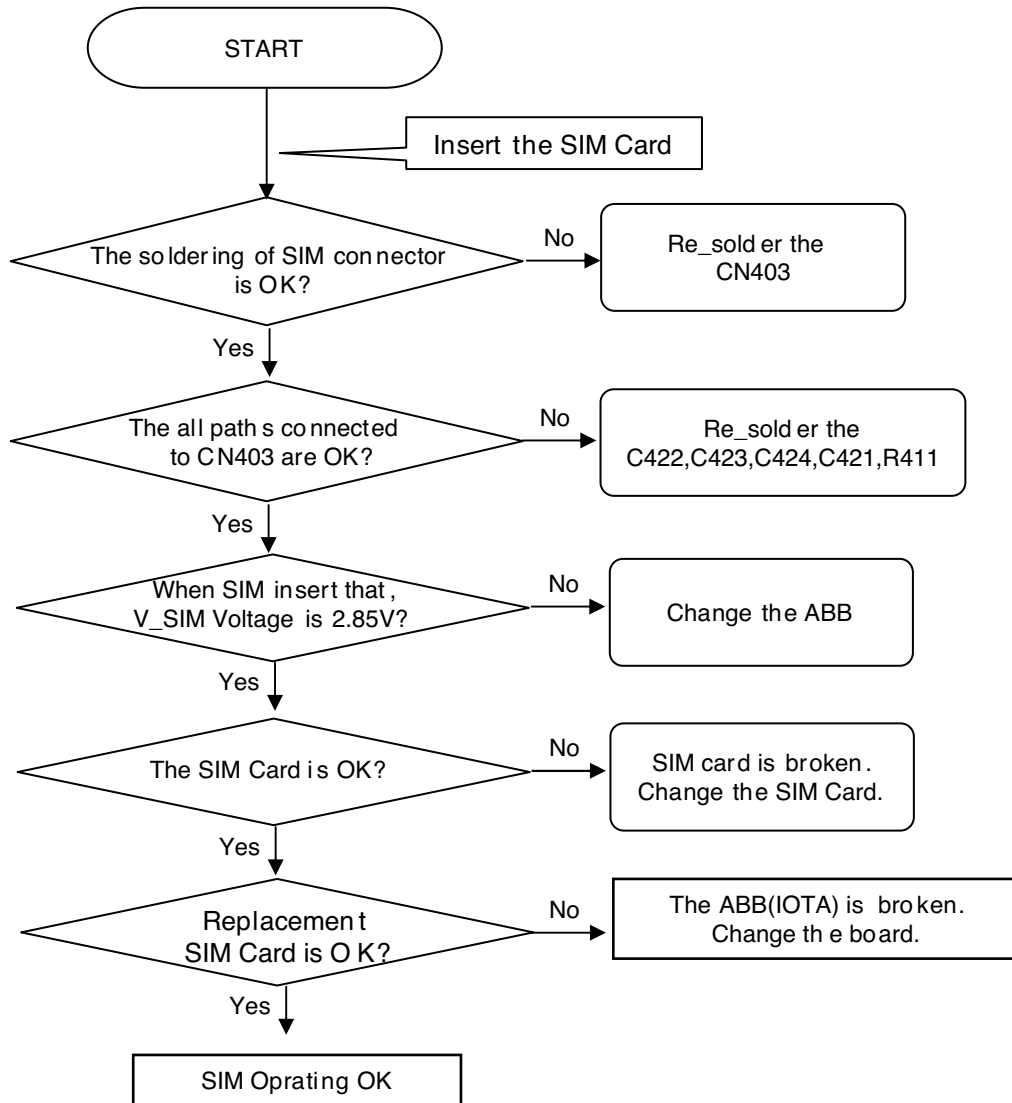
Check Points

- Contact between SIM and socket
- Soldering of SIM socket

Trouble Shooting Procedure

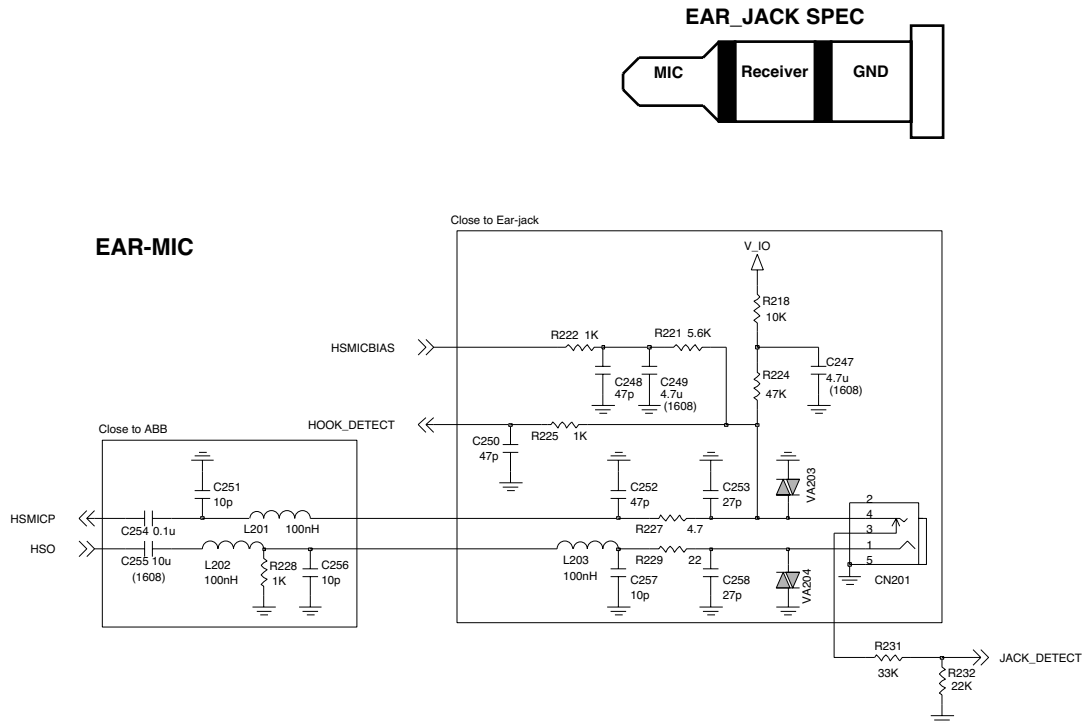
- Check the power supply.
- Check the soldering of SIM socket.
- Check the SIM.

4. TROUBLE SHOOTING



4.15 Earphone Trouble

Block Diagram



Earphone Detecting Operation

- The ABB operates A/D conversion continuously and if the voltage of “HOOK_DETECT” node goes to about 40mV, it detects hook switch is pushed in call state.
- First - “HOOK_DETECT” had Pull up by V_IO
- Second - “HOOK_DETECT” Change to Pull Down by Mic resistor of Earmic

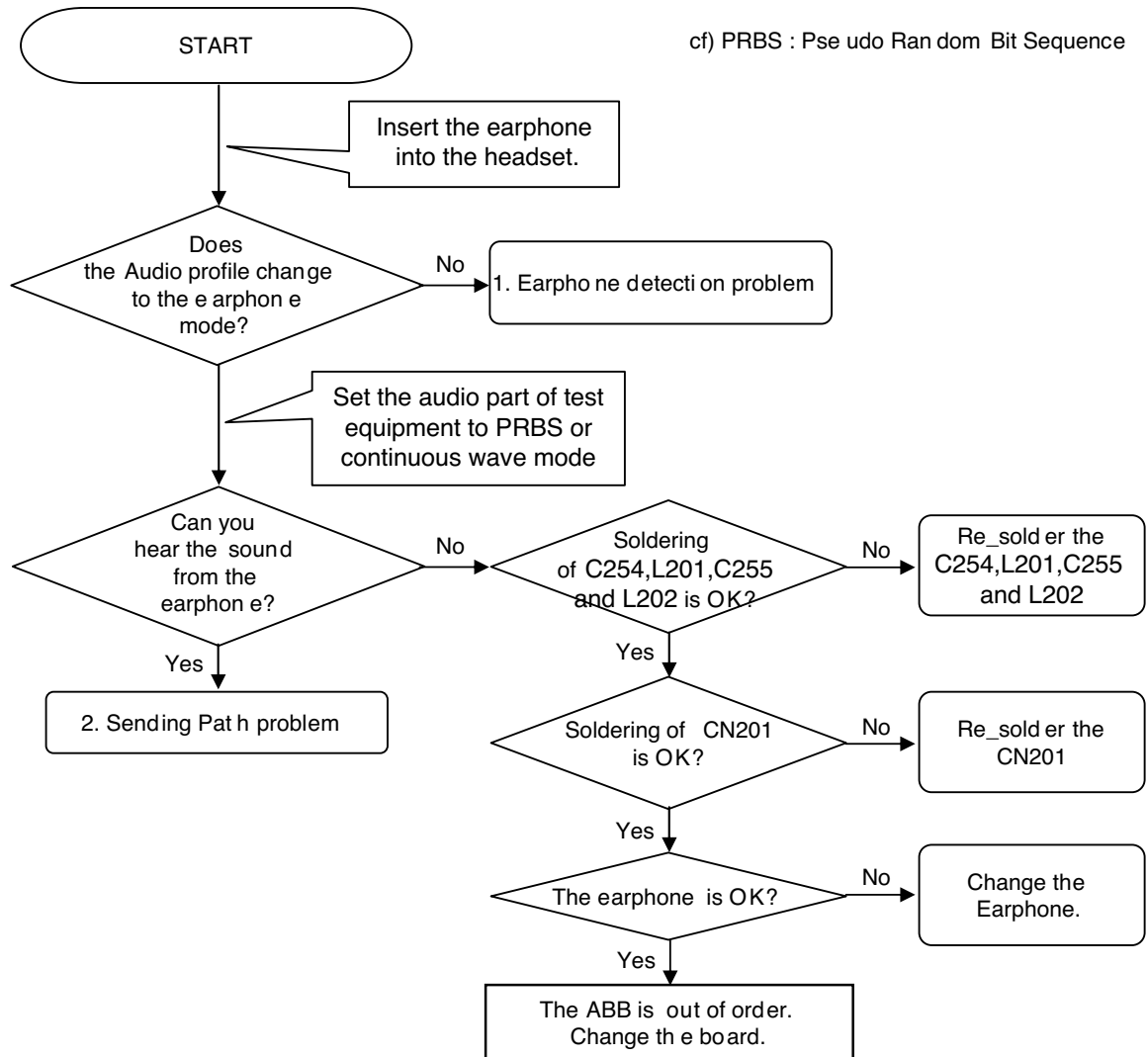
Earphone Sending Path

- HSMICP is the audio signal from the microphone of the earphone.
- C254, C251 and L201 make the path of the audio signal from the microphone of the earphone.
- This audio signal is delivered to ABB(IOTA).

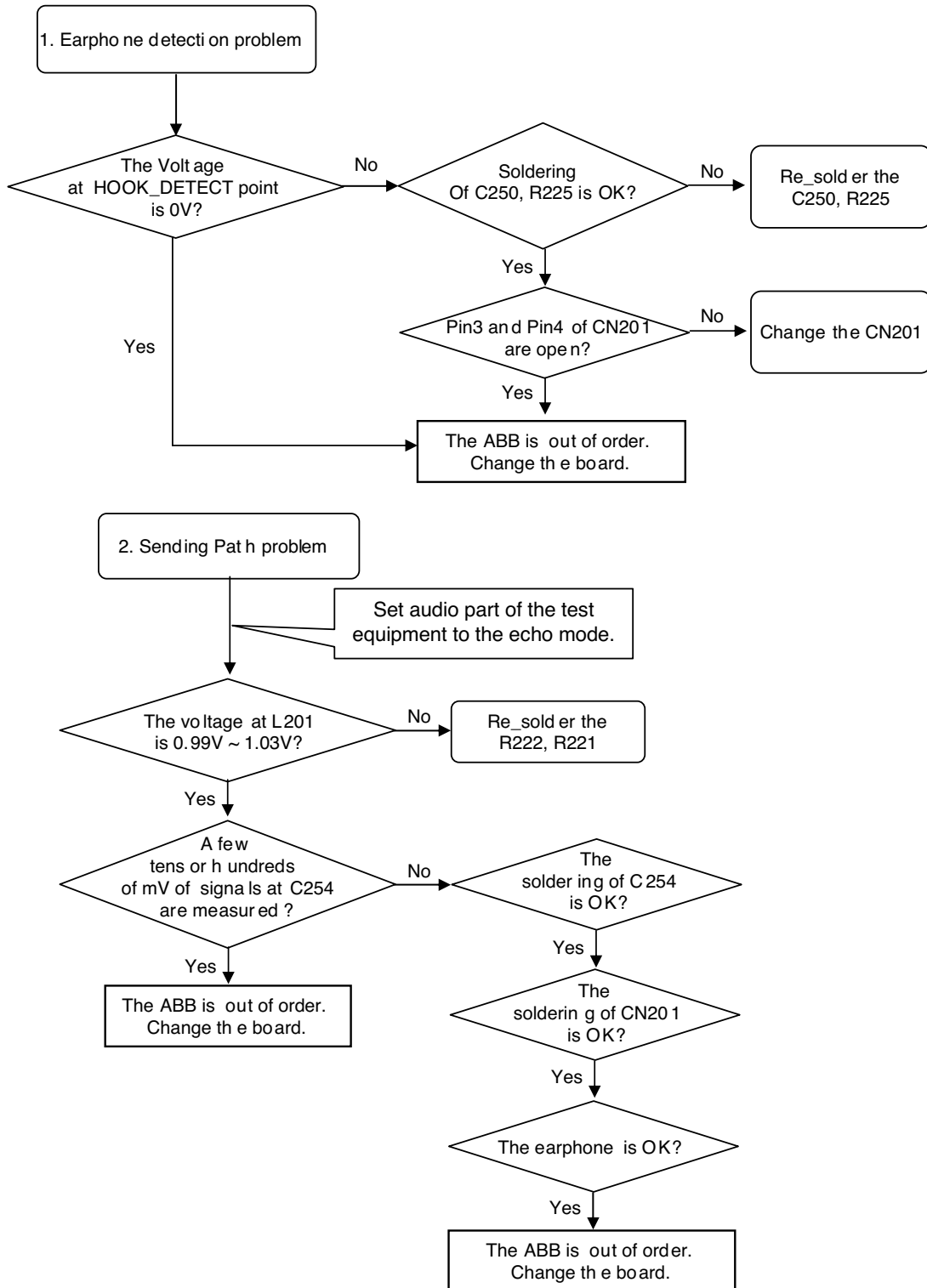
Earphone Receiving Path

- HSO is the audio signal from ABB(IOTA).
- C255, L202, R228 and C256 make the path of the audio signal from ABB to earphone.

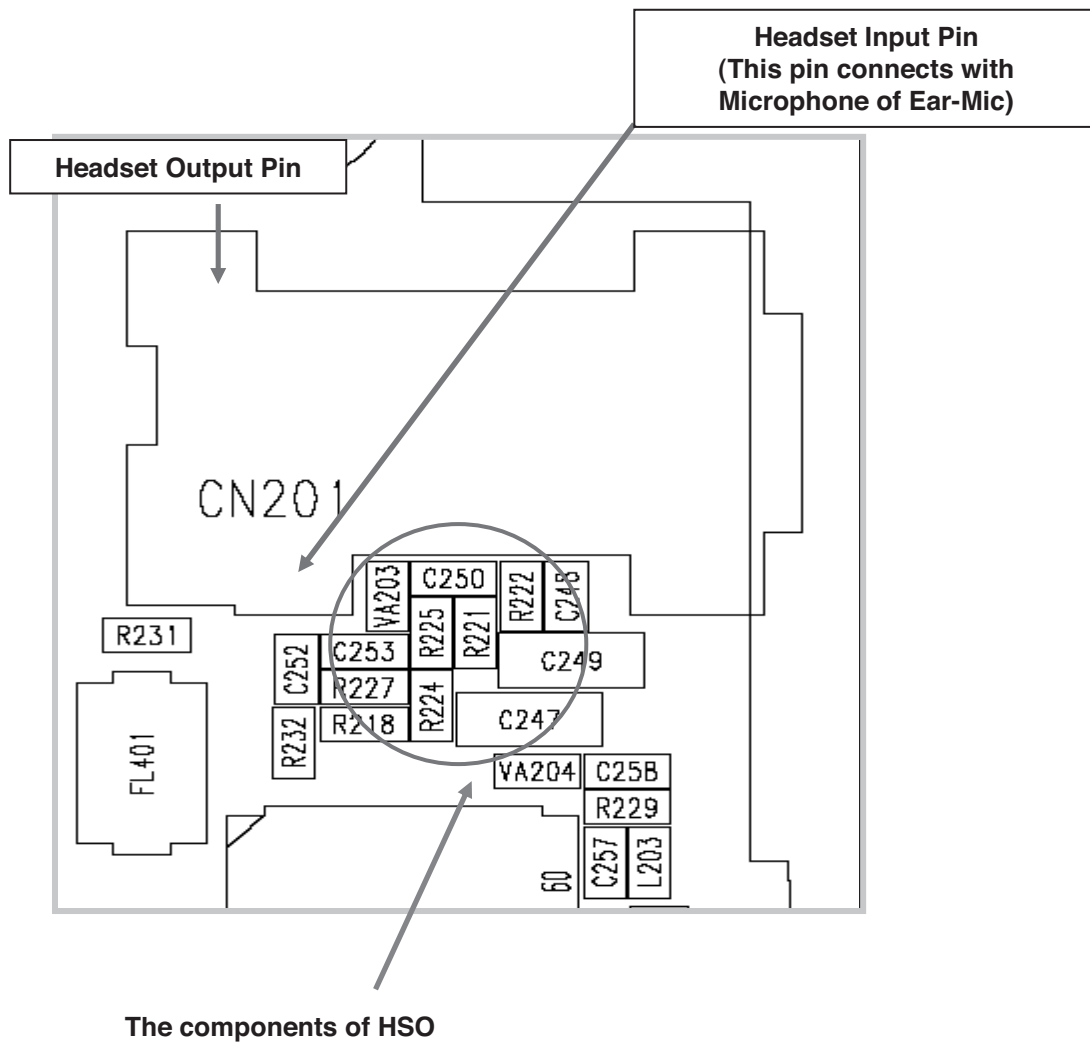
4. TROUBLE SHOOTING



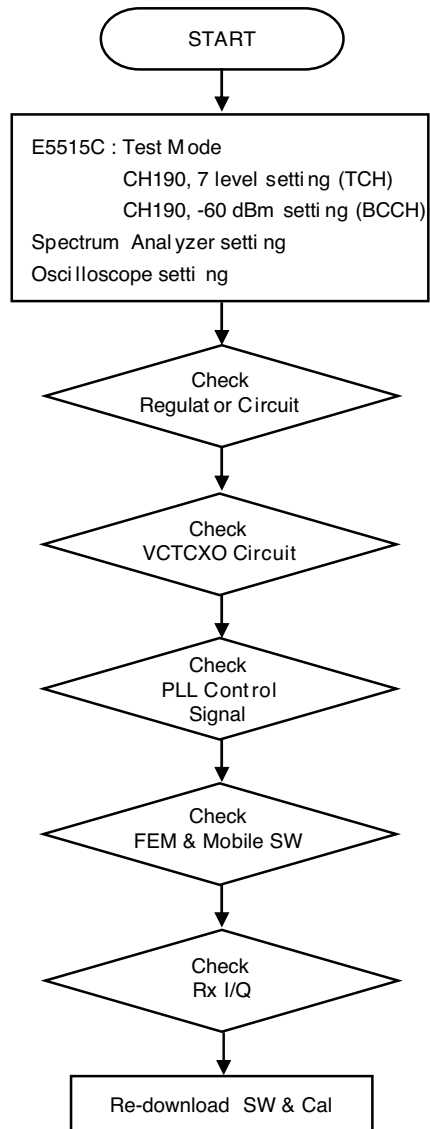
4. TROUBLE SHOOTING



4. TROUBLE SHOOTING

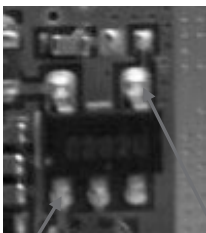
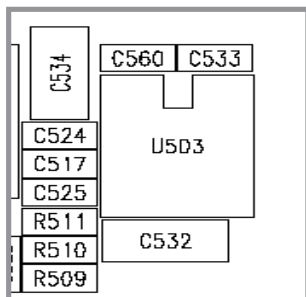
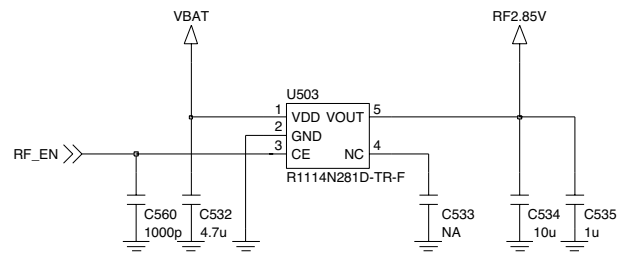
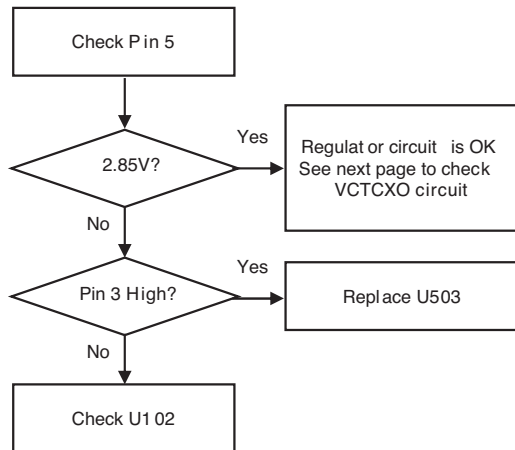


4.16 RF Rx pass Trouble Shooting



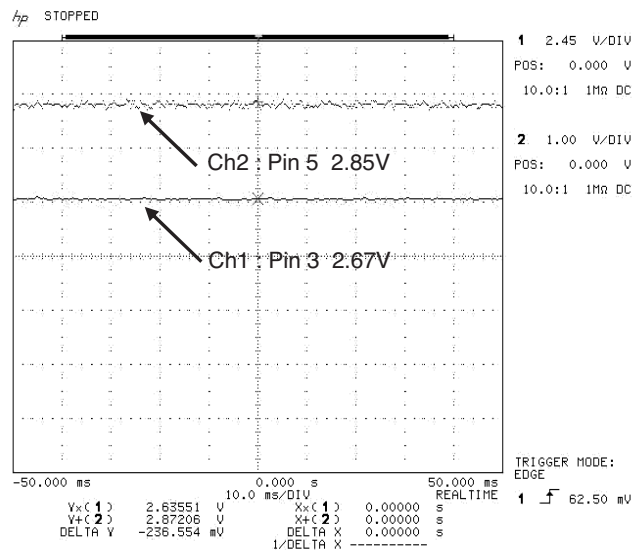
4. TROUBLE SHOOTING

4.16.1 Checking Regulator Circuit (Rx pass continued)



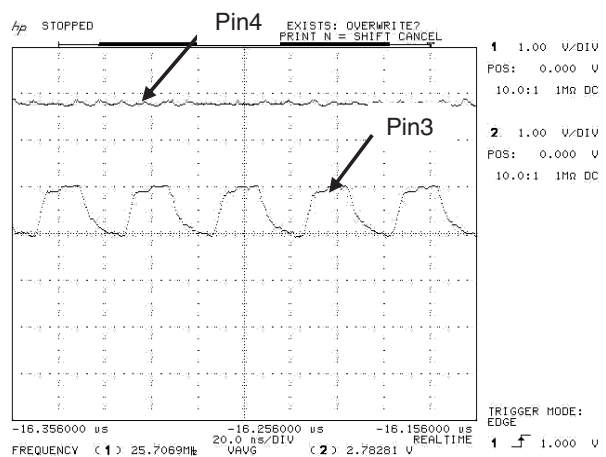
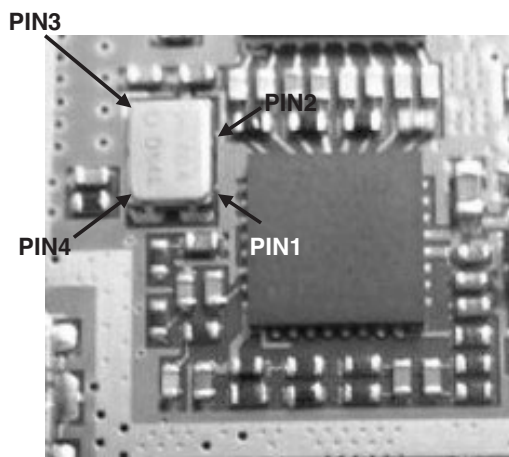
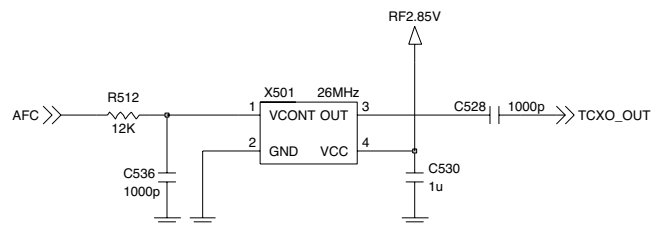
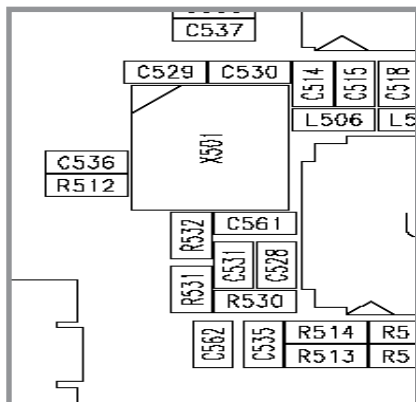
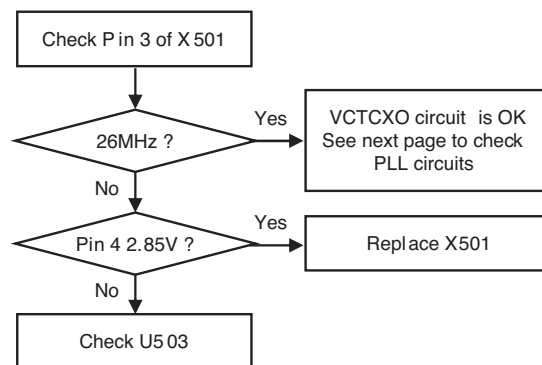
PIN3

PIN5



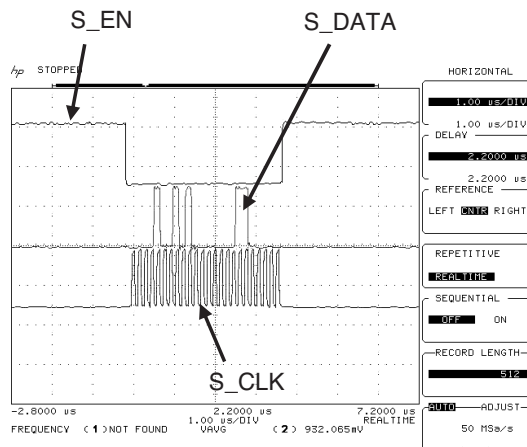
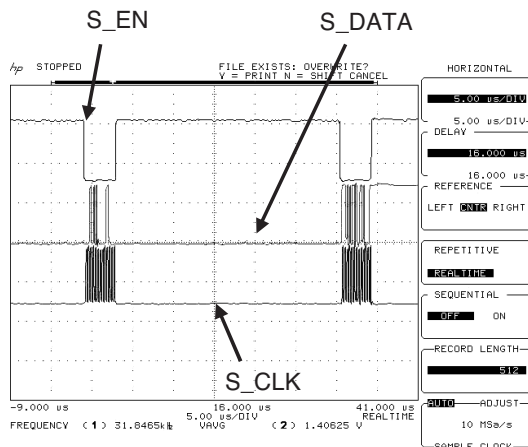
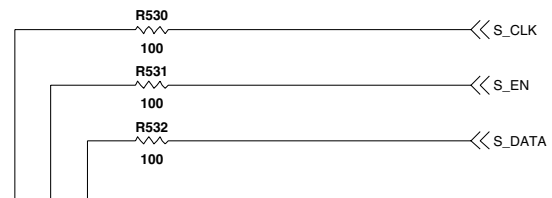
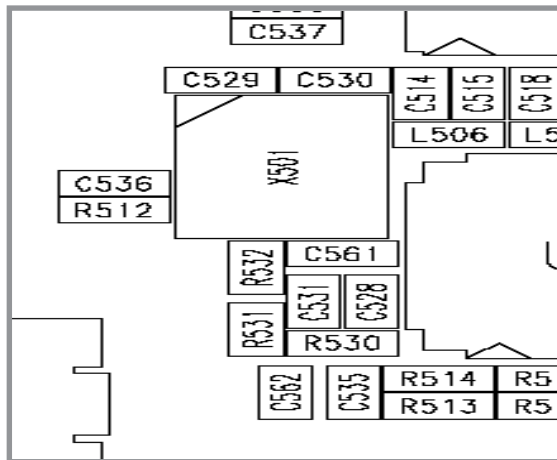
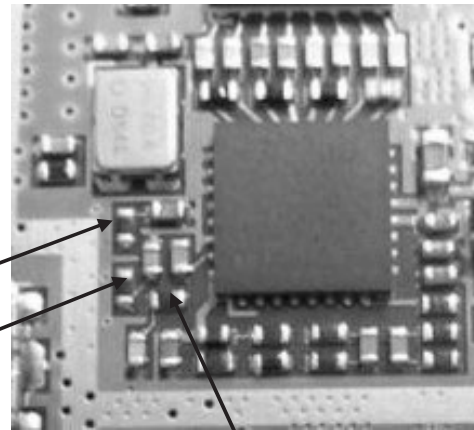
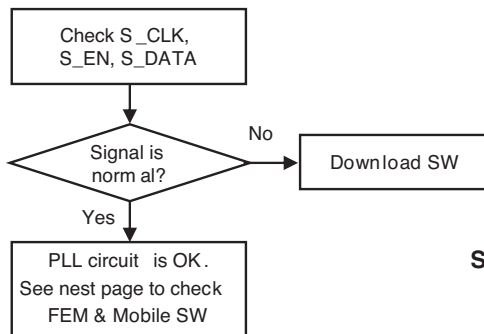
4. TROUBLE SHOOTING

4.16.2 Checking VCTCXO Circuit (Rx pass continued)

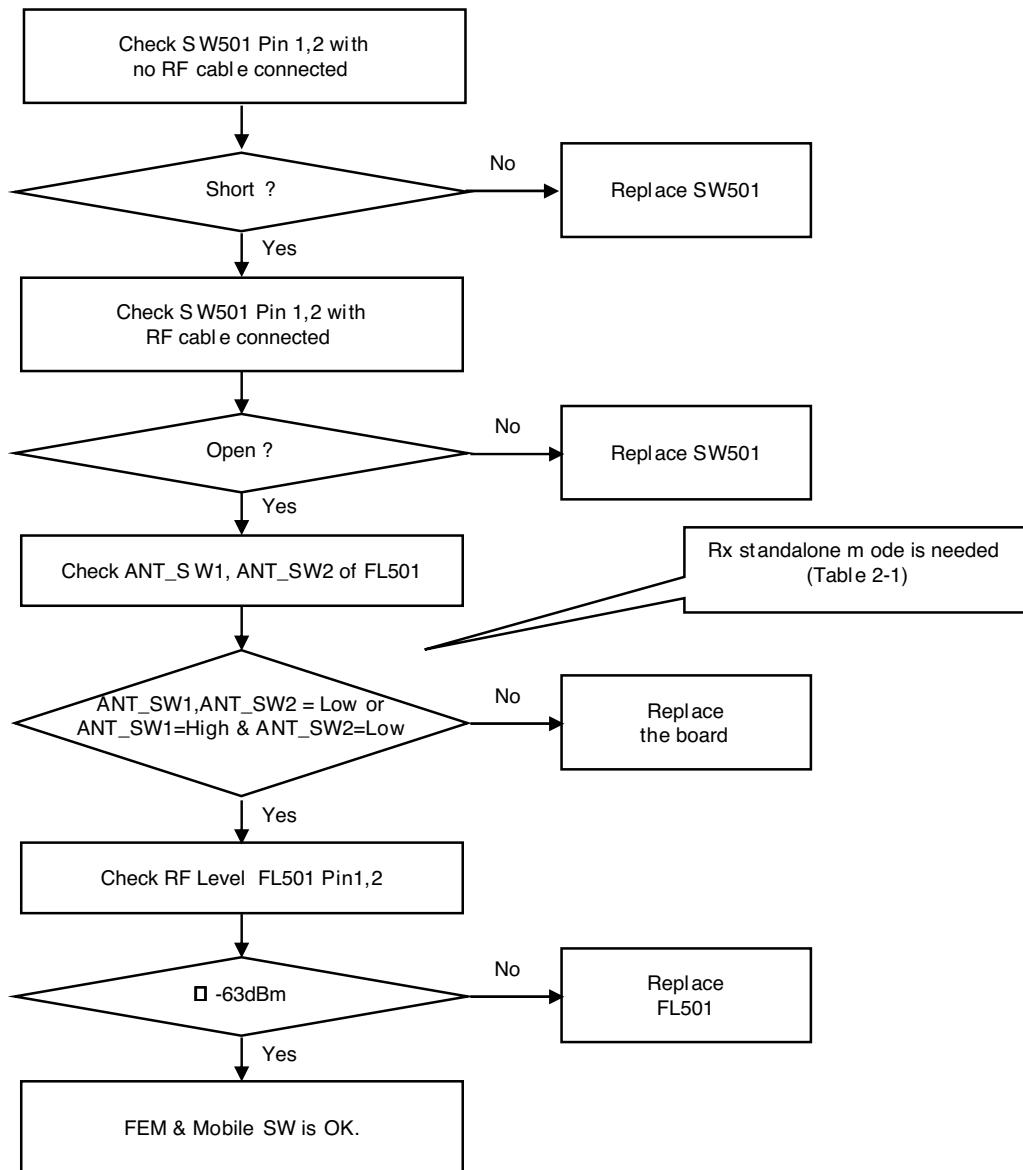


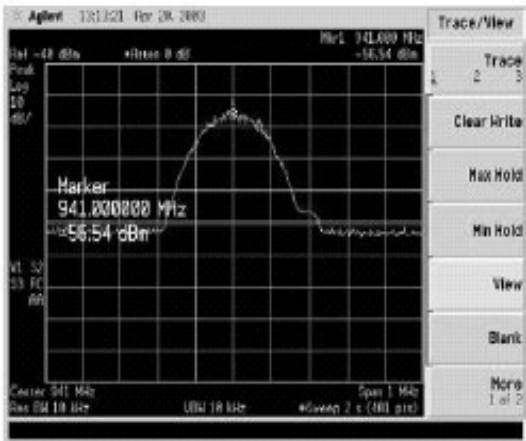
4. TROUBLE SHOOTING

4.16.3 Checking PLL Circuit (Rx pass continued)



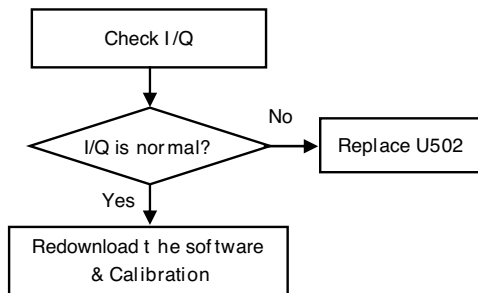
4.16.4 Checking FEM & Mobile SW (1) (Rx pass continued)



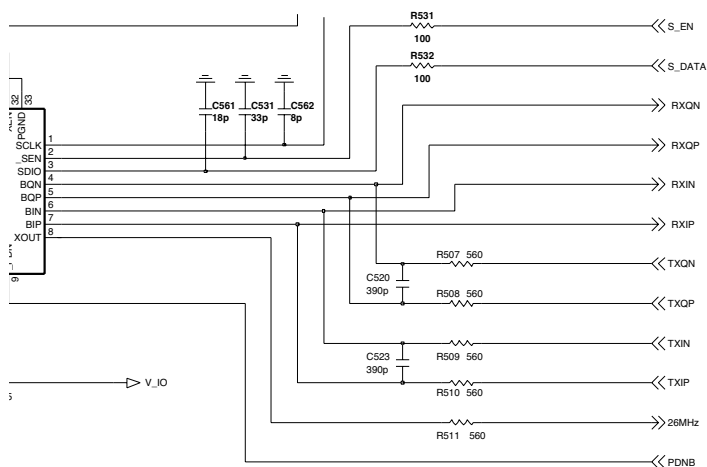
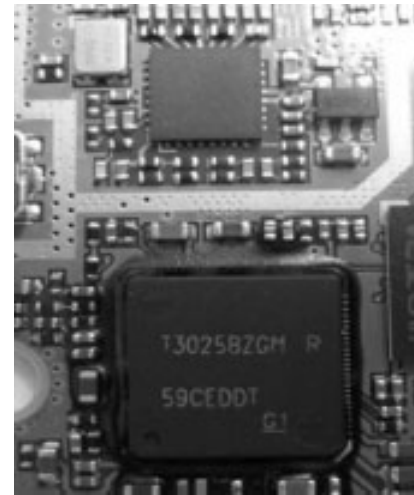
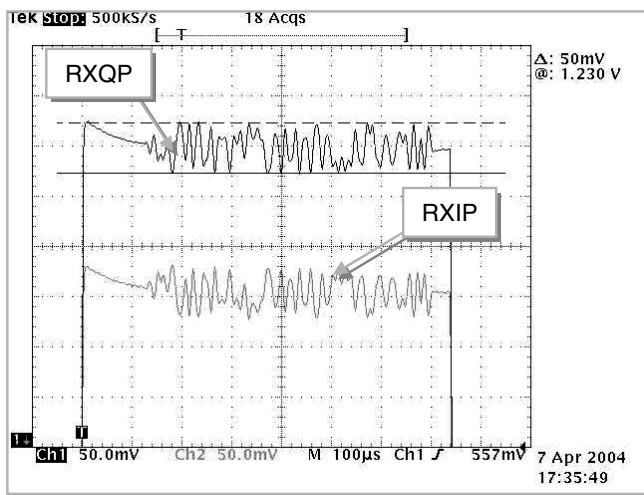
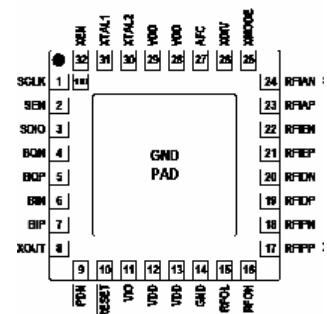


4. TROUBLE SHOOTING

4.16.6 Checking Rx I/Q (Rx pass continued)

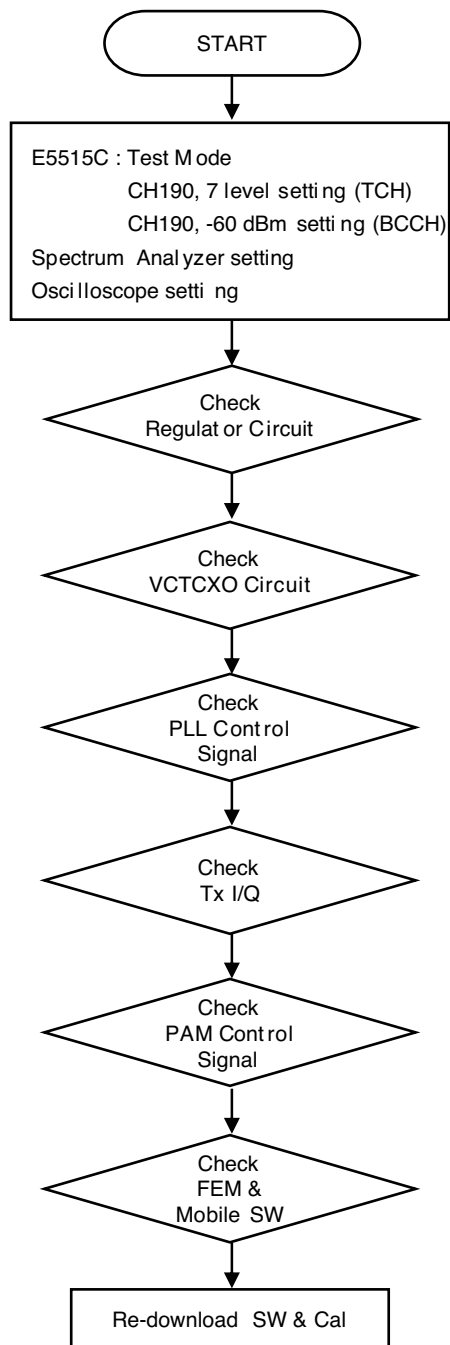


SI4210-GM
(Pin descriptions, see page 27)



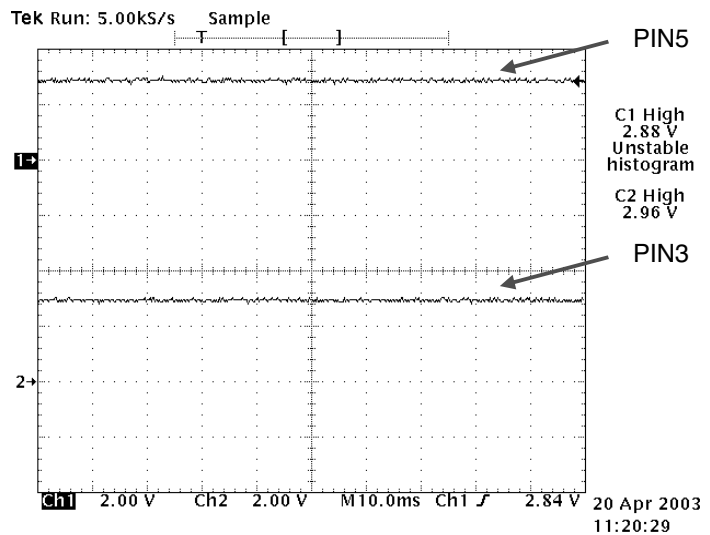
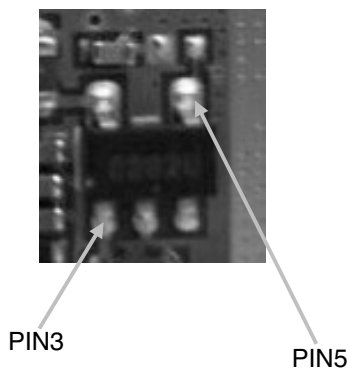
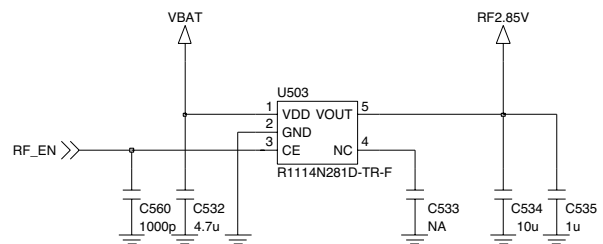
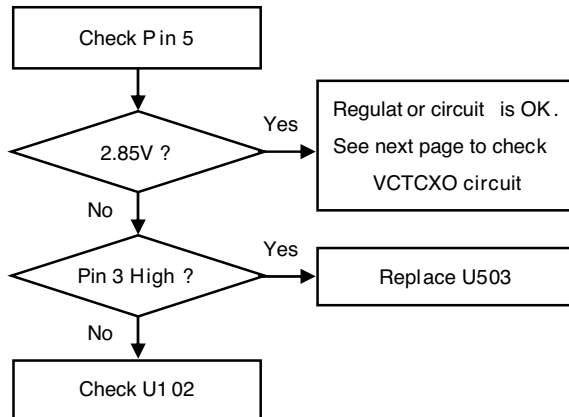
4. TROUBLE SHOOTING

4.17 RF Tx pass Trouble Shooting



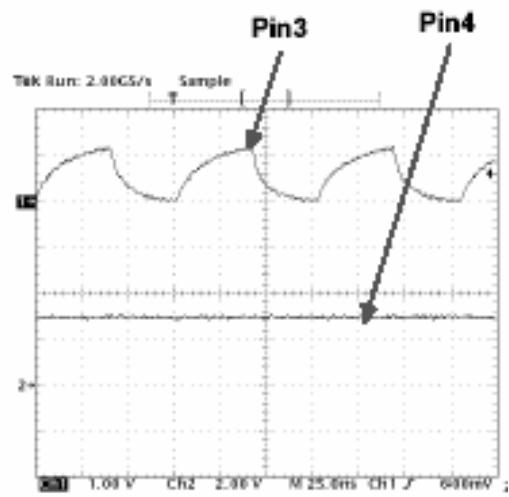
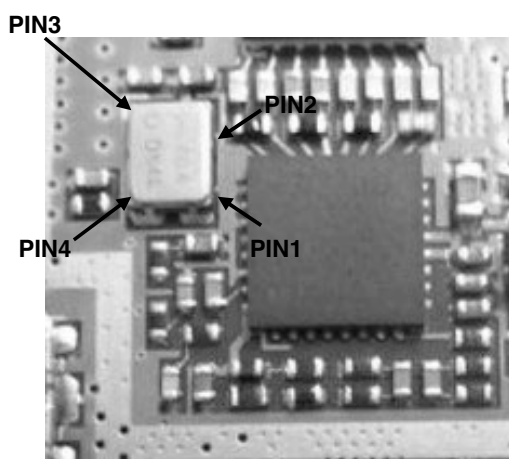
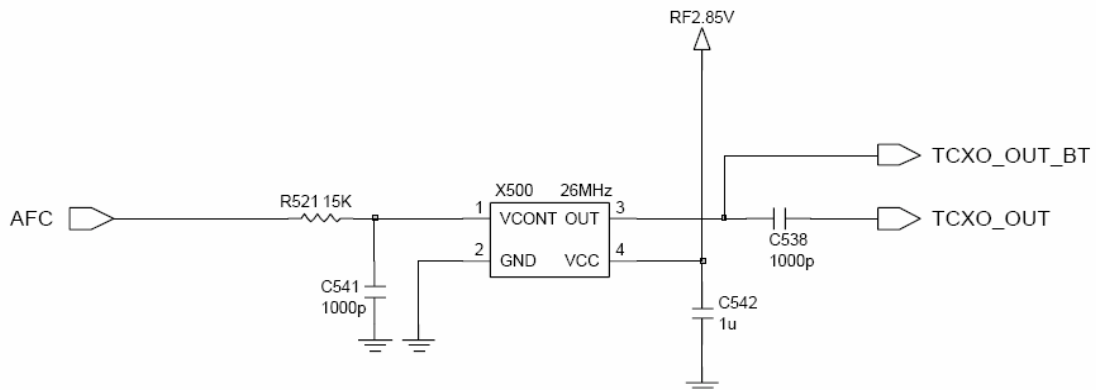
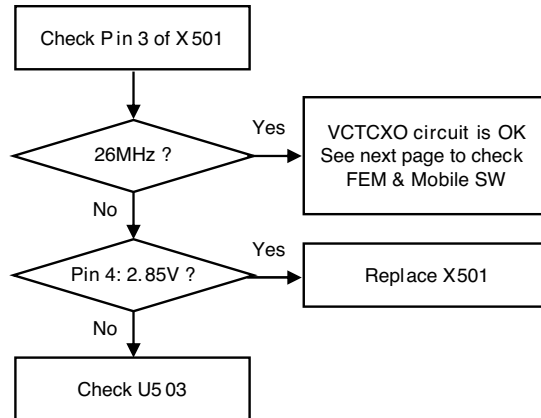
4. TROUBLE SHOOTING

4.17.1 Checking Regulator Circuit (Tx pass continued)



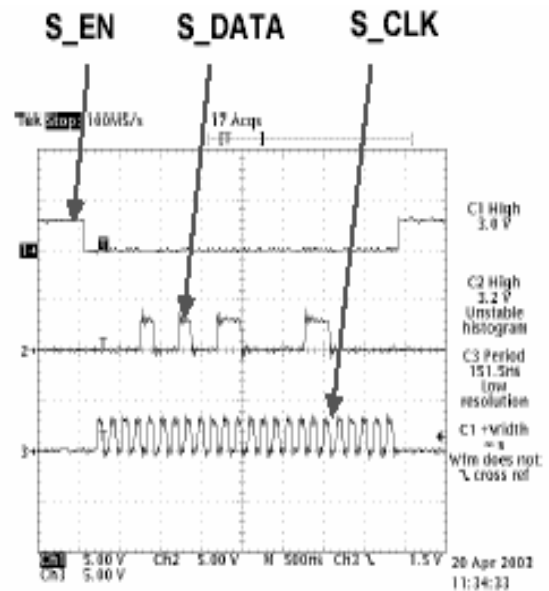
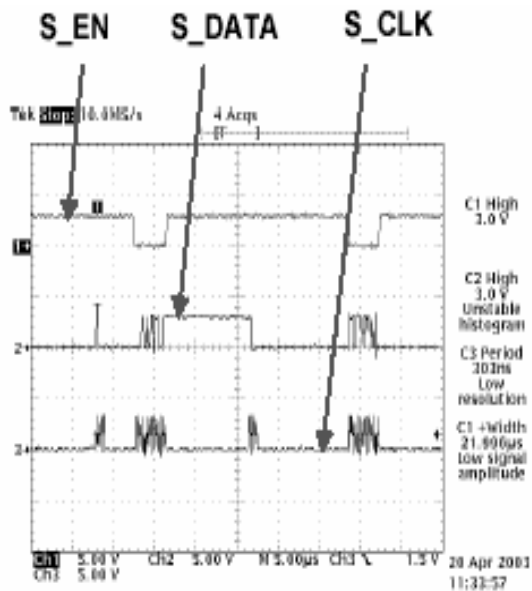
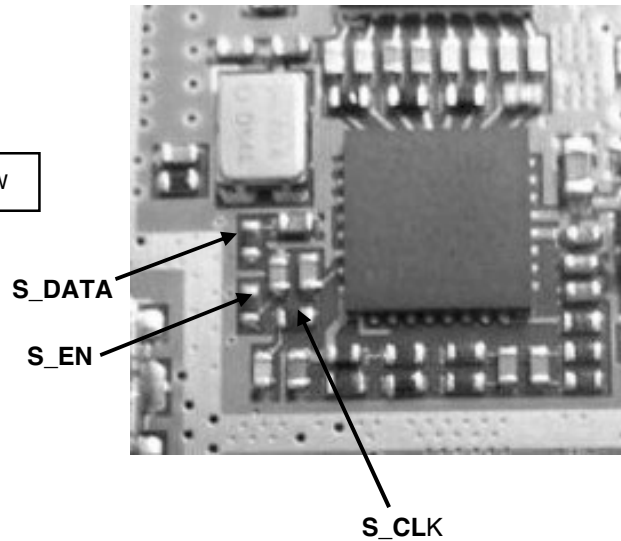
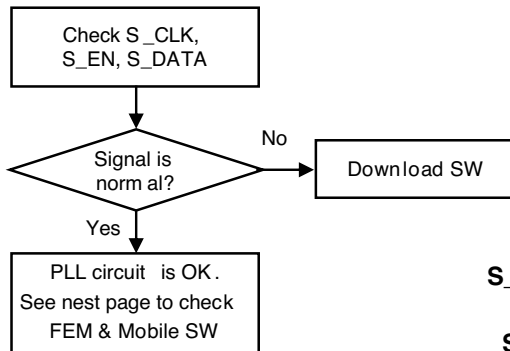
4. TROUBLE SHOOTING

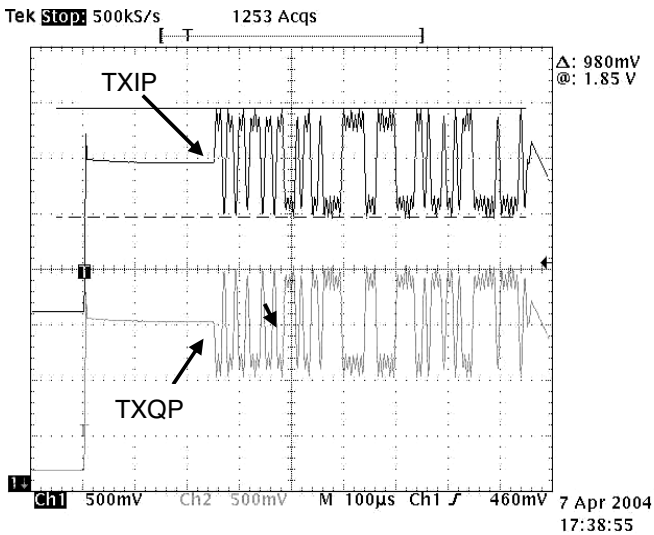
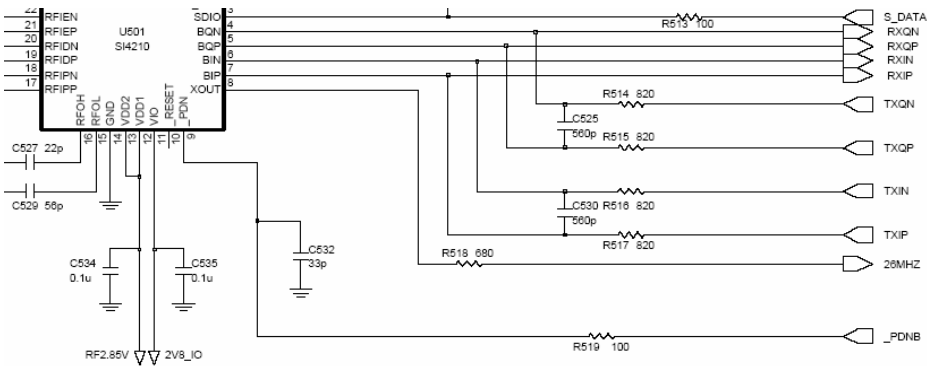
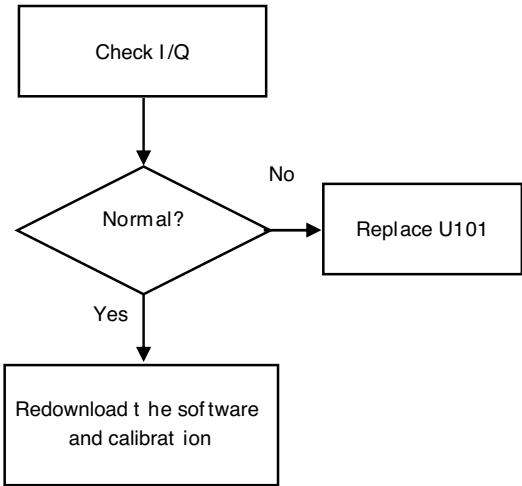
4.17.2 Checking VCTCXO Circuit (Tx pass continued)



4. TROUBLE SHOOTING

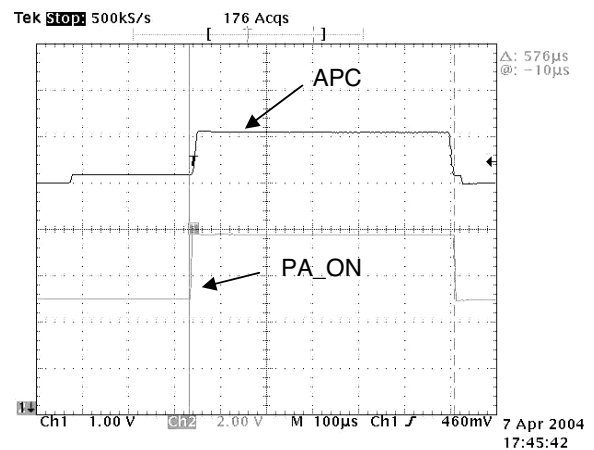
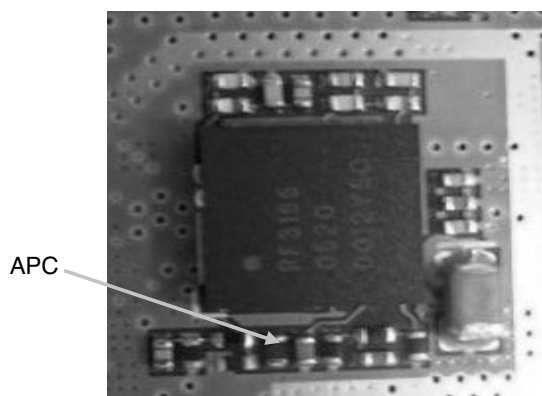
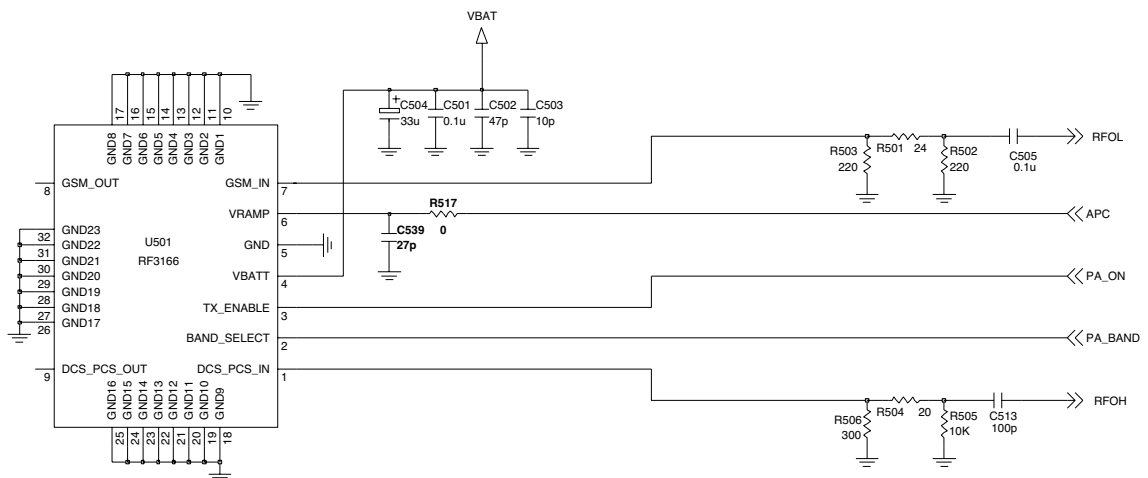
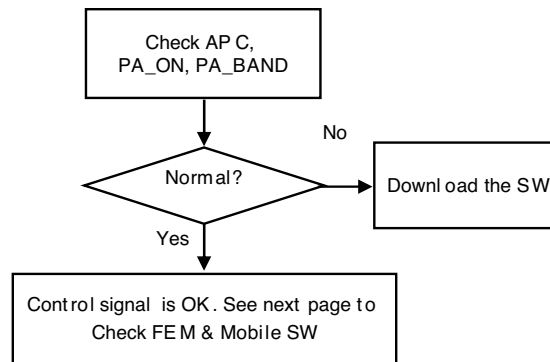
4.17.3 Checking PLL Circuit (Tx pass continued)





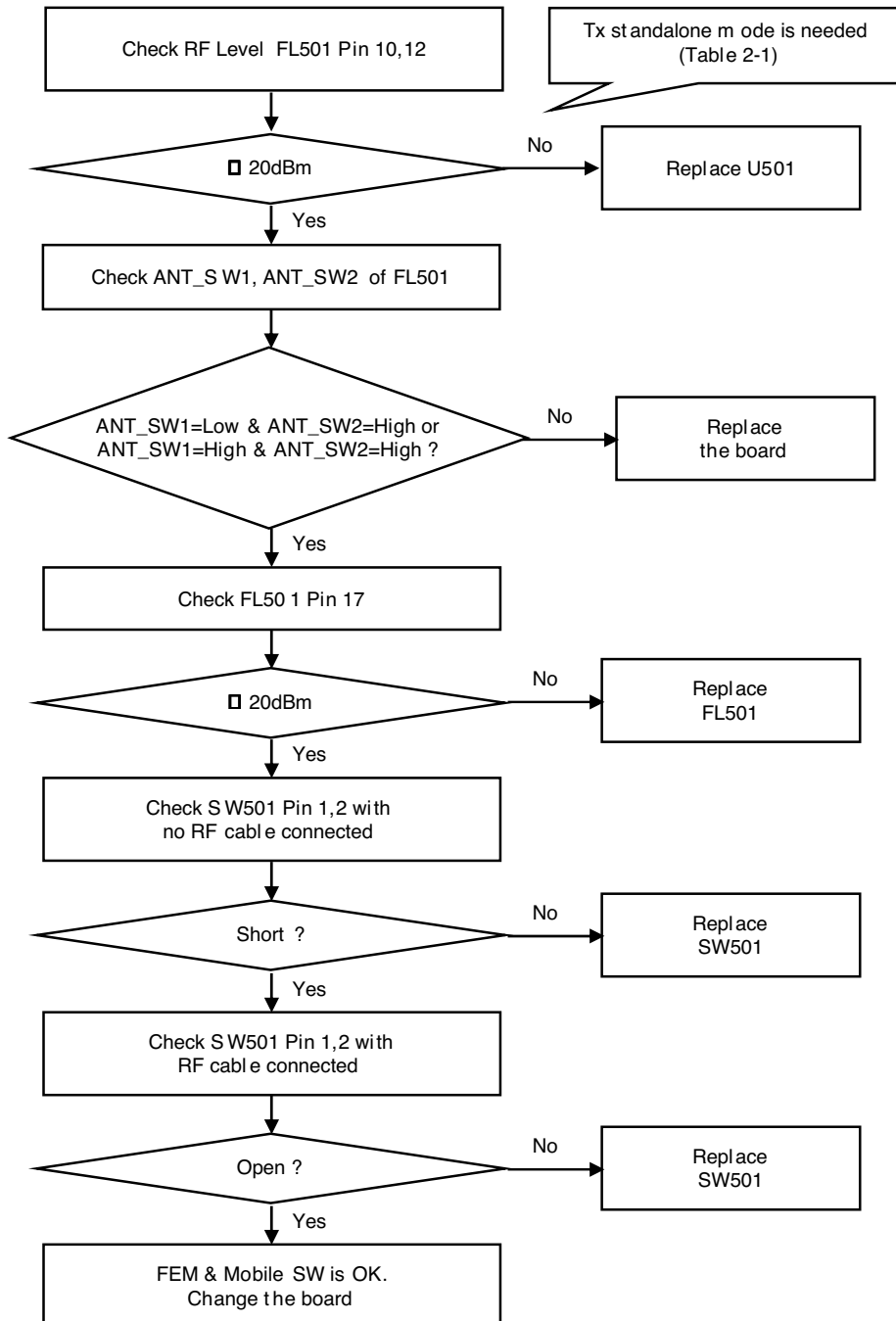
4. TROUBLE SHOOTING

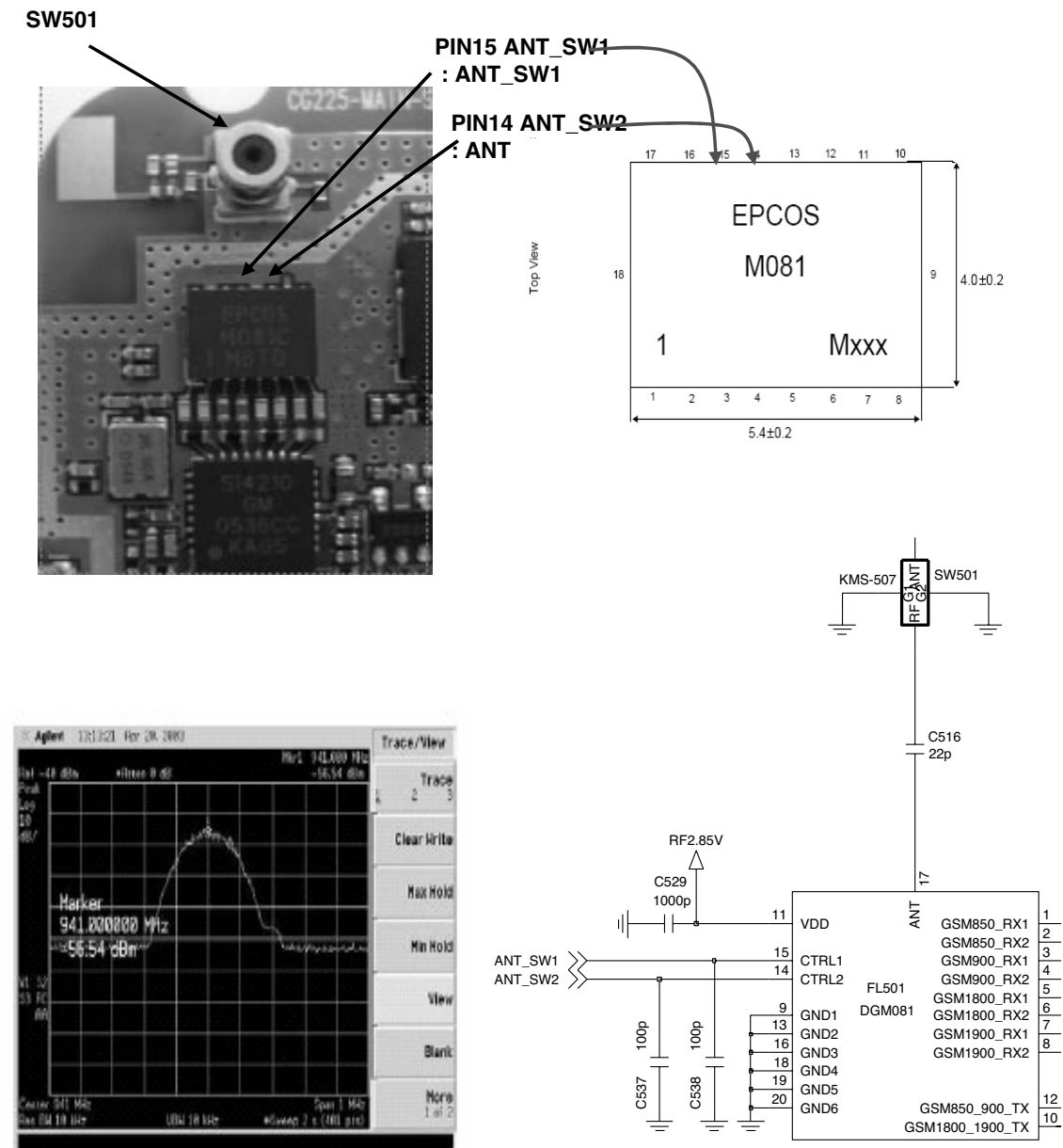
4.17.5 Checking PAM Control Signal (Tx pass continued)



4. TROUBLE SHOOTING

4.17.6 Checking FEM & Mobile SW (1) (Tx pass continued)





5. DOWNLOAD

5. DOWNLOAD

5.1 Download Setup

5.1.1 In case of using the Data kit

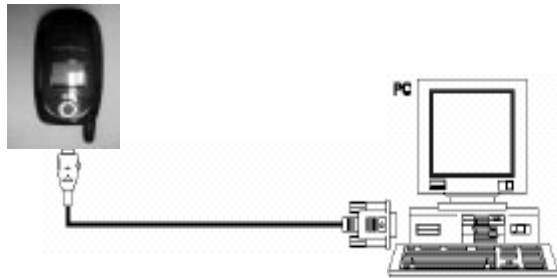


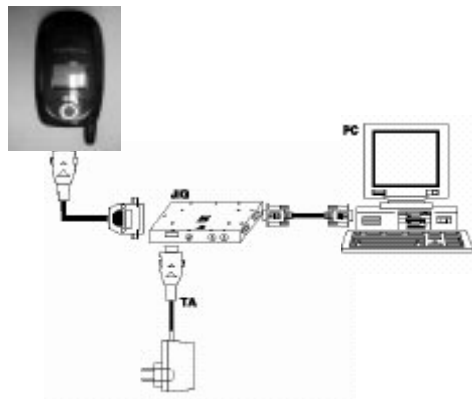
Figure 6-1 Describes Download Setup

Preparation

- Target Handset
- Data kit
- Battery
- IBM compatible PC supporting RS-232 with Windows 98 or newer

If you use data kit, you should have a battery with the voltage above 3.7V.

5.1.2 In case of using the PIF



Preparation

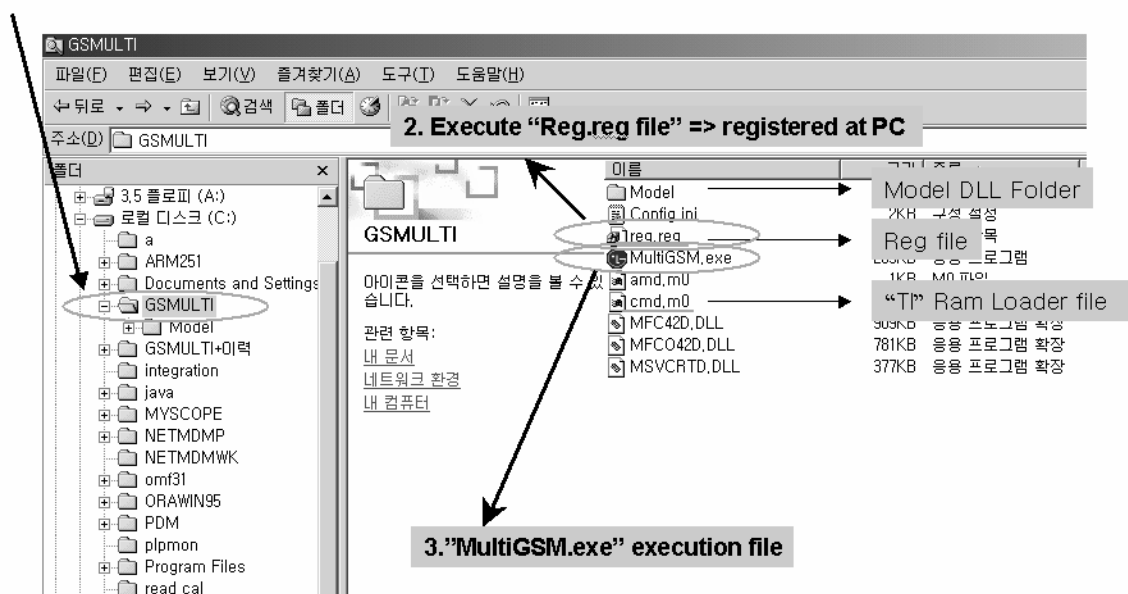
- Target Handset
- PIF
- RS-232 Cable and PIF-to-Phone interface Cable
- TA/Power Supply or Battery
- BM compatible PC supporting RS-232 with Windows 98 or newer

If you use battery, you should have a battery with the voltage above 3.7V.

5.2 Download Procedure

5.2.1. Computer Program file -> MultiGSM.EXE Click

1. Copy "GSMULTI" folder, paste in "C:\\"

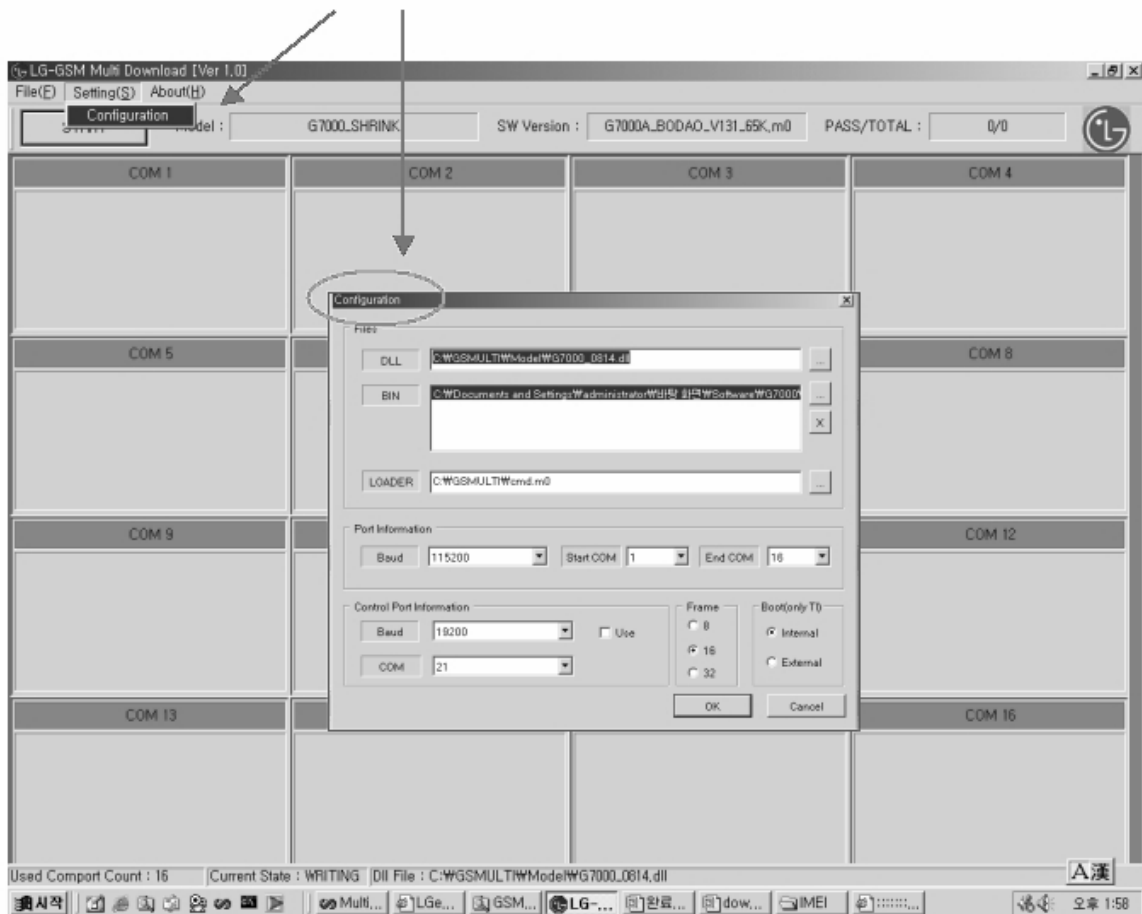


5. DOWNLOAD

5.2.2. Click the “Setting” button.

Then, choose Configuration which is going to download.

4. Menu “Setting” → “Configuration”



5.2.3. Configuration Setting

5. Configuration : Select values like below

The screenshot shows the 'Configuration' dialog box with the following fields and options:

- Files:**
 - DLL:** C:\GSMULTI\Mode\CG225.dll (Callout 1)
 - PH:** C:\GSMULTI\TWS\Software\WF225B_V1.07\WF225B40R_44_V1.03_225-33.dll (Callout 2)
 - LOADER:** C:\GSMULTI\cmd.m0 (Callout 3)
- Port Information:**
 - Download speed (bps):** 115200 (Callout 4)
 - Start Com port:** 1 (Callout 5)
 - End Com port:** 1 (Callout 6)
- Control Port Information:**
 - Base:** 115200
 - COM:** 21
 - Use:** ☐ (Callout 9 points to the 'No Use' button)
- Frame:**
 - Options:**
 - ☒ Common (Callout 7)
 - ☐ Hermes
 - Base/Port:**
 - ☒ Internal (Callout 8)
 - ☐ External
- Buttons:** OK (Callout 9), Cancel

Annotations:

- Callout 1: C:\GSMULTI\Mode\CG225.dll
- Callout 2: Phone Software select (m0 file)
- Callout 3: C:\GSMULTI\cmd.m0
- Callout 4: Download speed (bps)
- Callout 5: Start Com port
- Callout 6: End Com port
- Callout 7: Frame count select
- Callout 8: Internal
- Callout 9: OK

Legend:

- Download speed : TI Model → 115200bps, ADI Model → 460800bps
- Start COM: 1, End COM: 16
- Frame: 16

16port Setting Default condition →

5. DOWNLOAD

5.2.4. Press “Start Button”.



5. DOWNLOAD

5.2.5. After “Start Button”, Which Stand-by condition

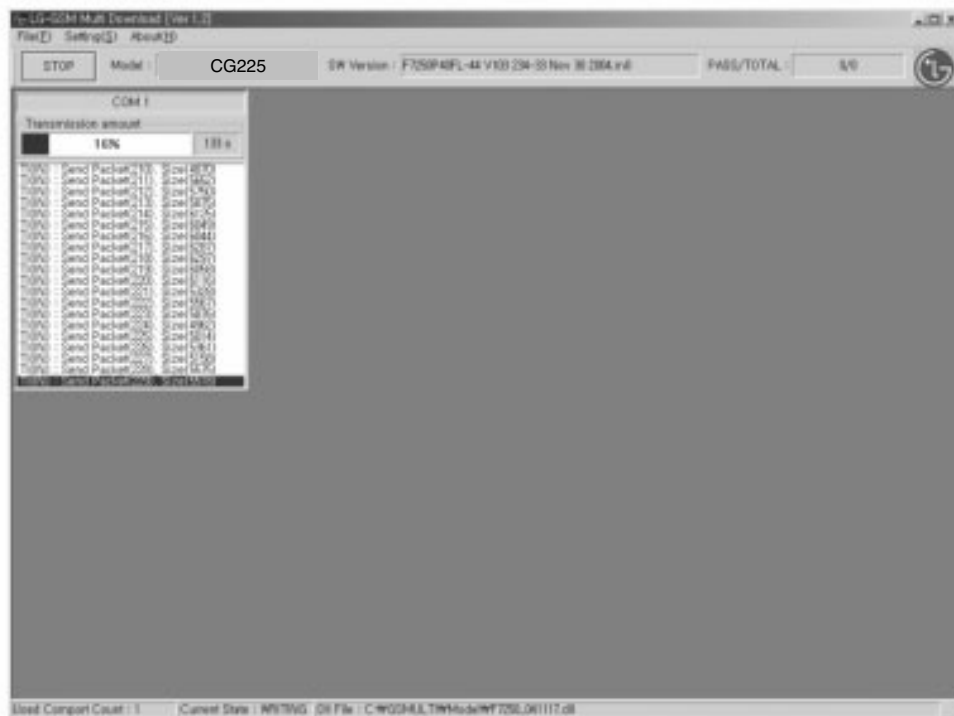
7. Stand-by Condition: “Wait phone connecting” is displayed → Connect the Phone.



5. DOWNLOAD

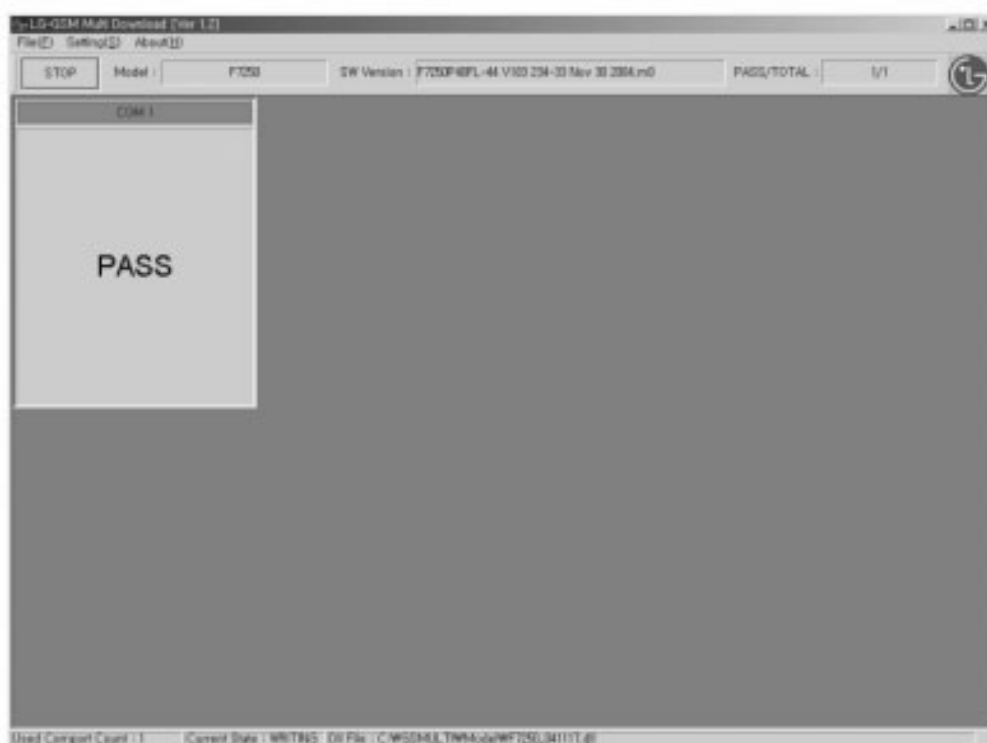
5.2.6. SW downloading Condition.

✕ Downloading : Start



5.2.7. SW downloading END Condition.

✂ Downloading : End

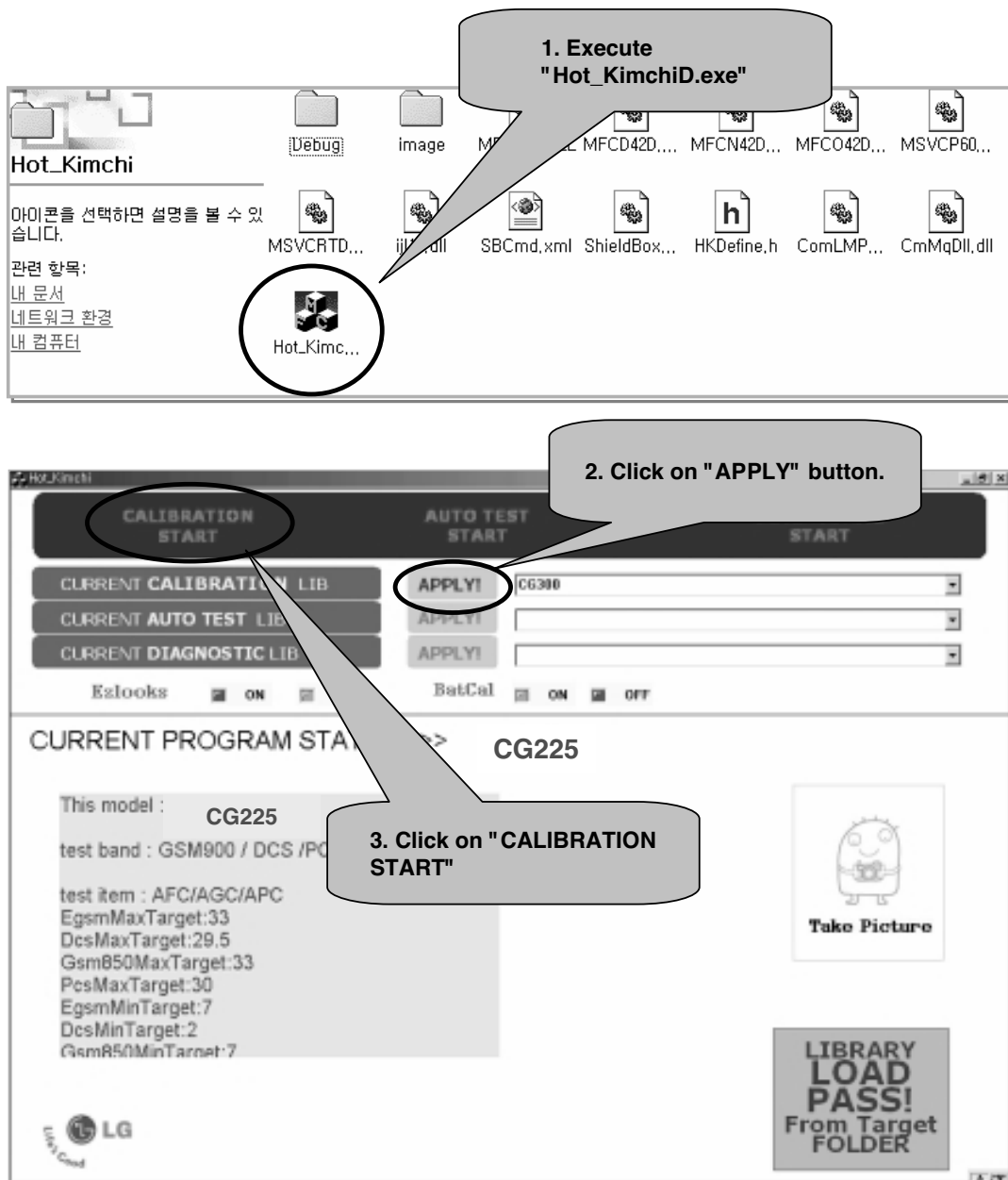


6. SERVICE AND CALIBRATION

6. SERVICE AND CALIBRATION

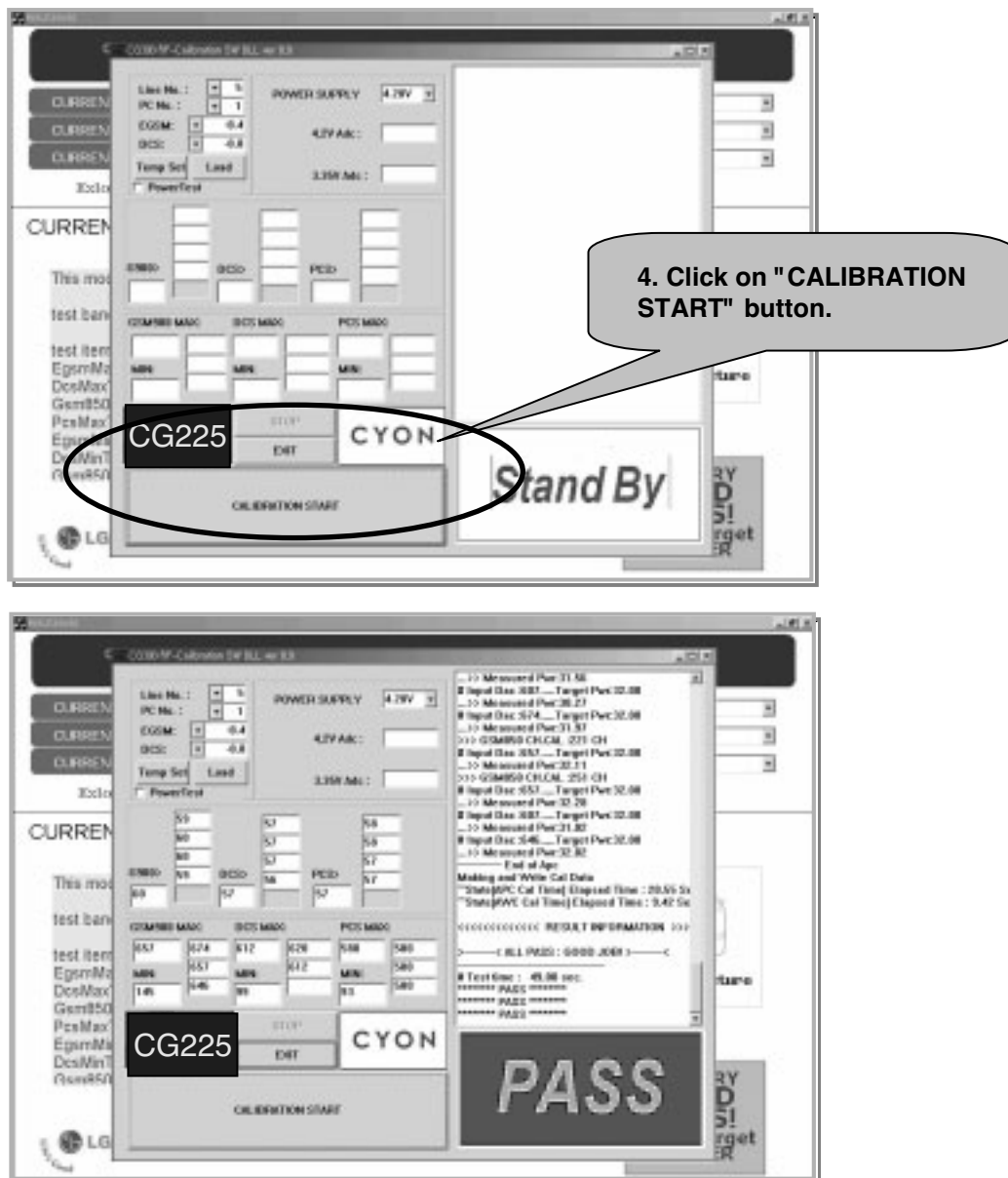
6.1 Service S/W

6.1.1 RF Calibration Program



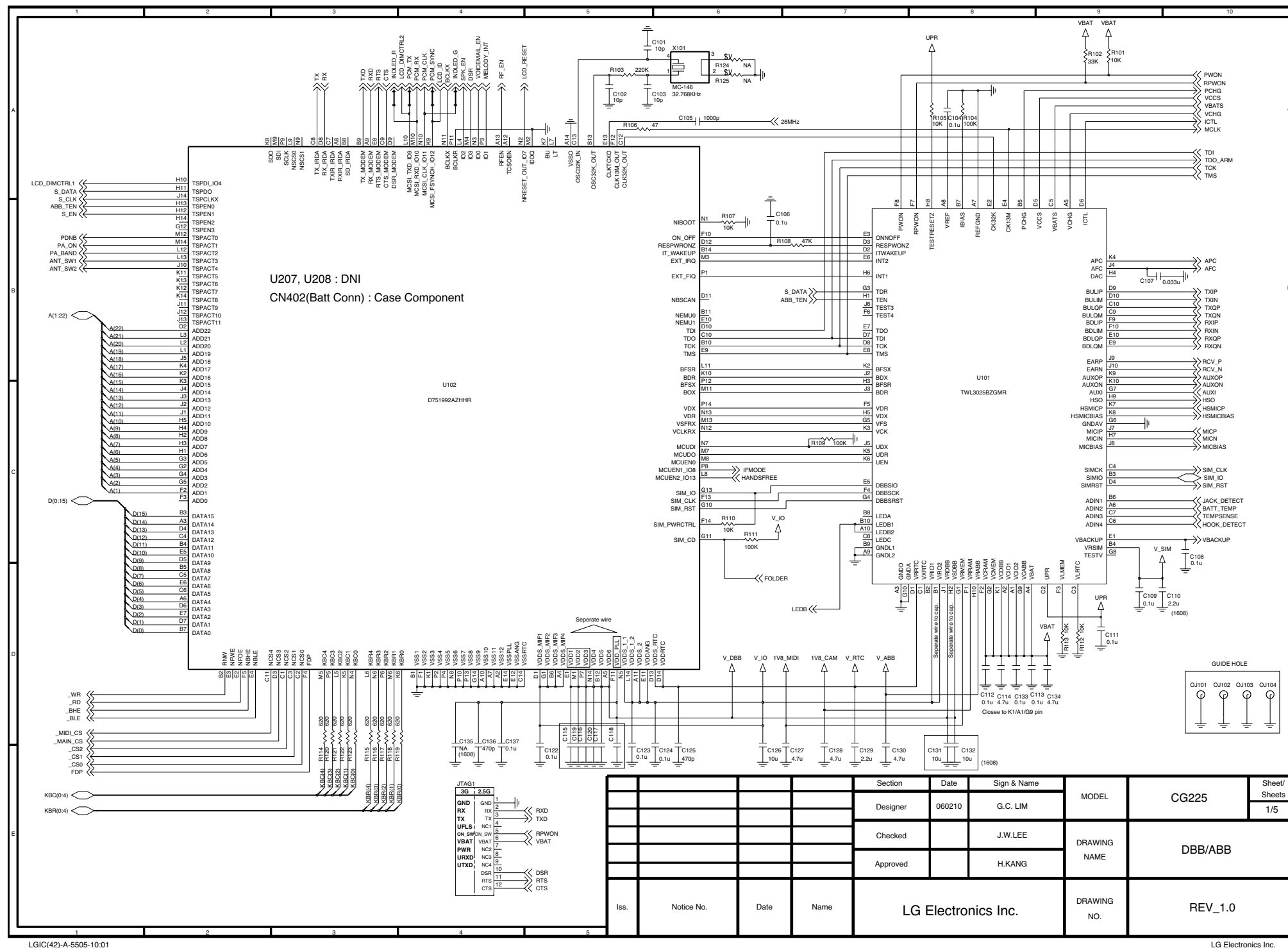
6. SERVICE AND CALIBRATION

6.1.2. RF Calibration Program

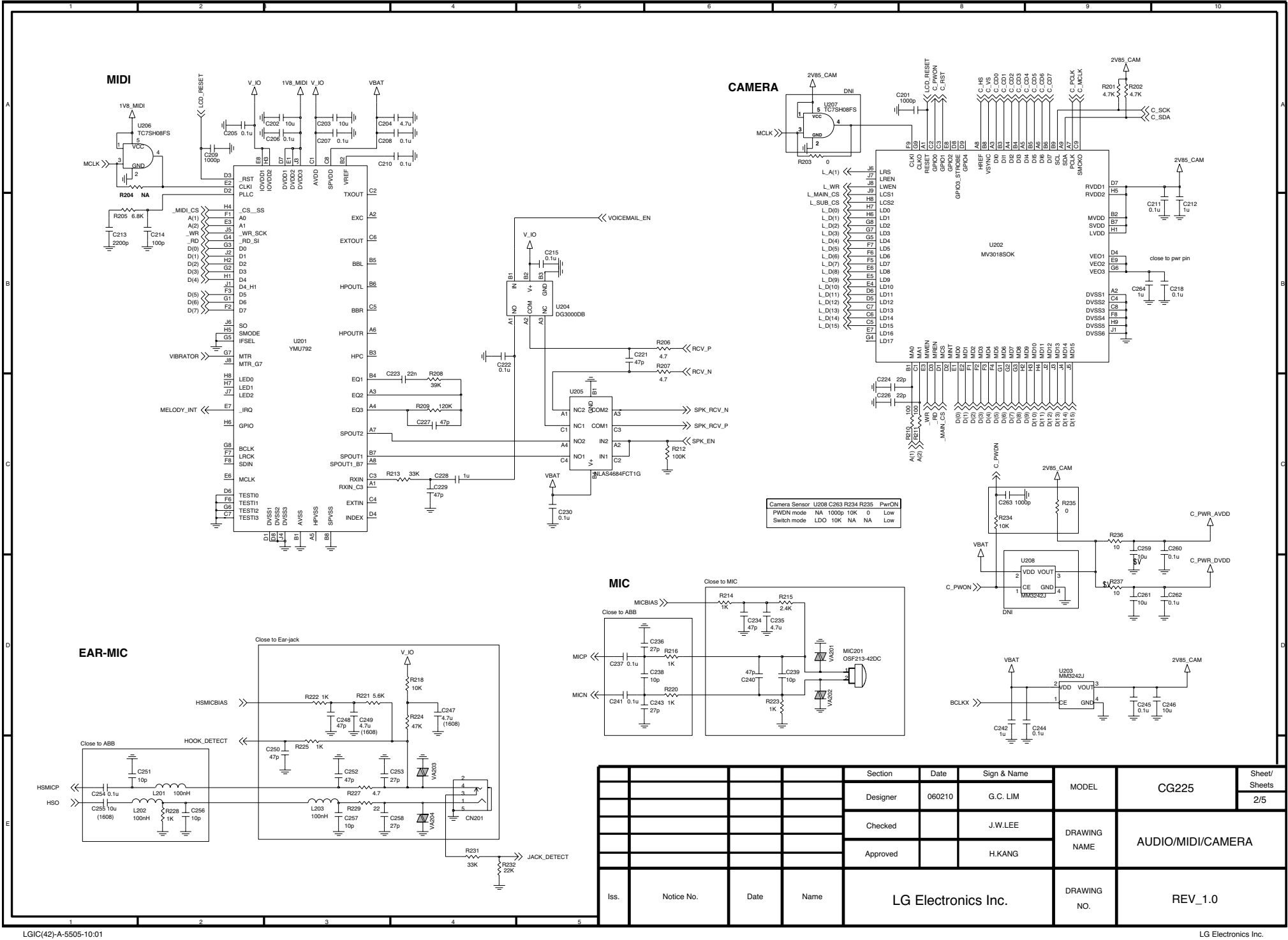


Note

7. CIRCUIT DIAGRAM



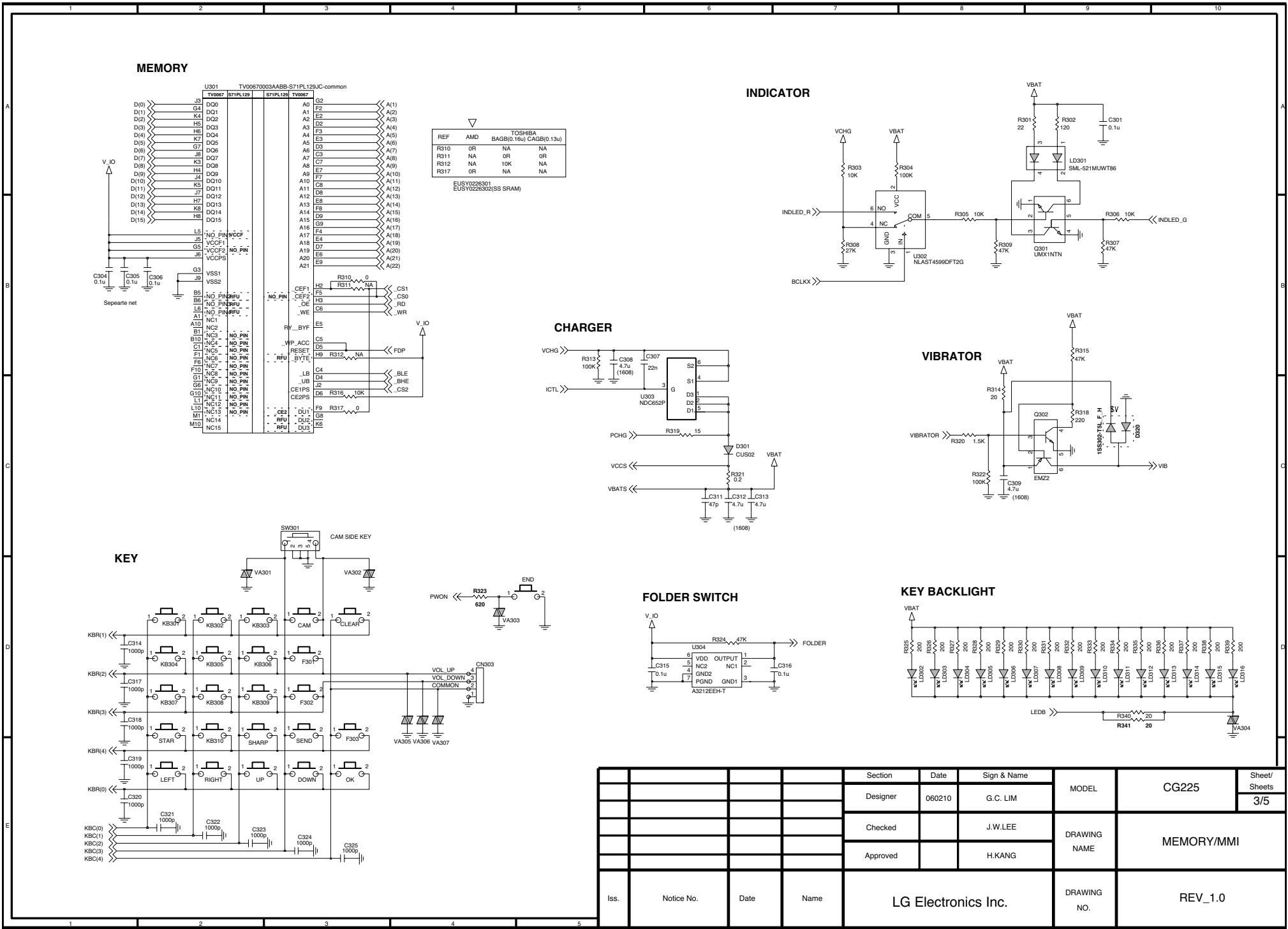
7. CIRCUIT DIAGRAM



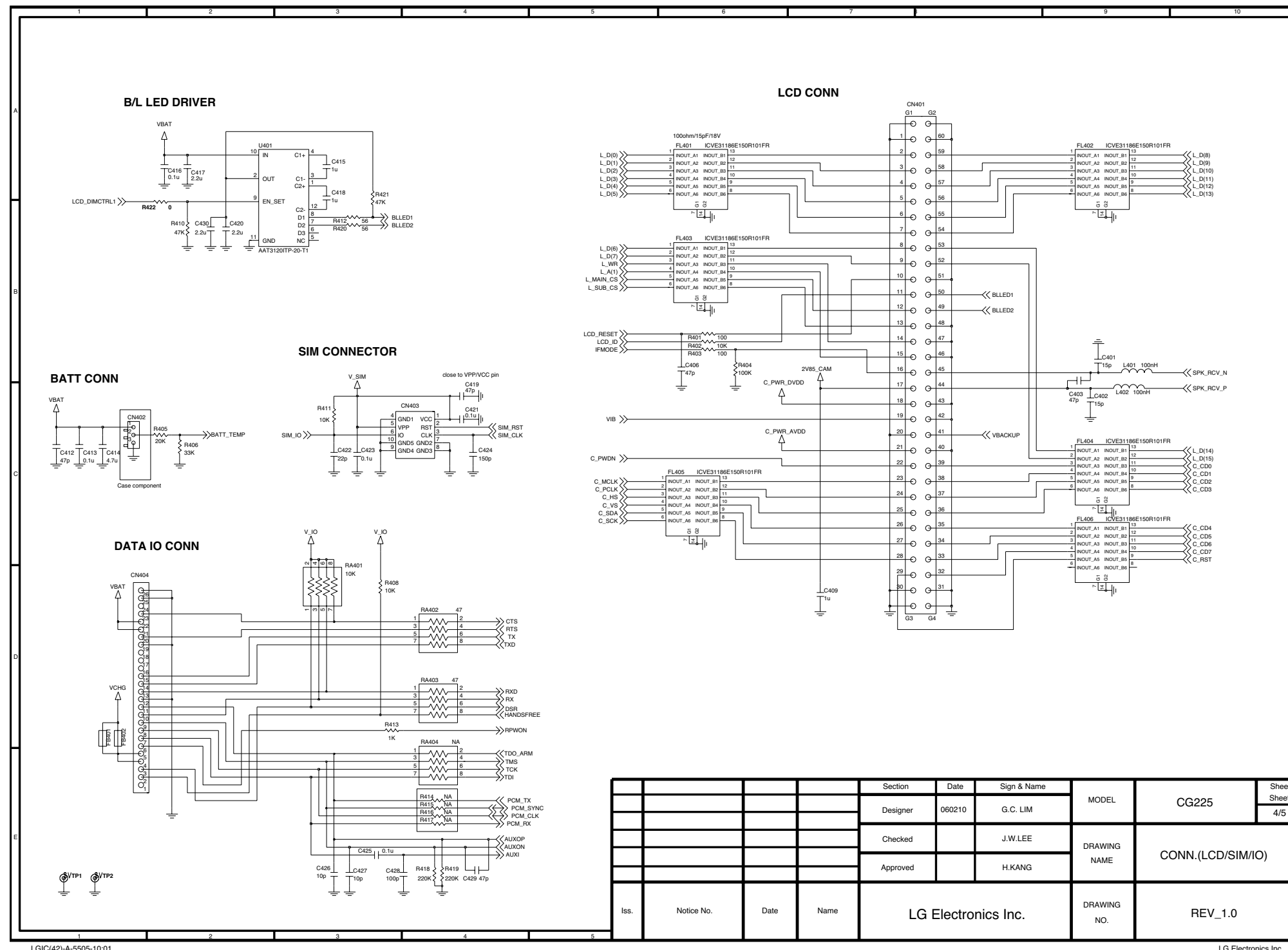
LGIC(42)-A-5505-10-01

LG Electronics Inc.

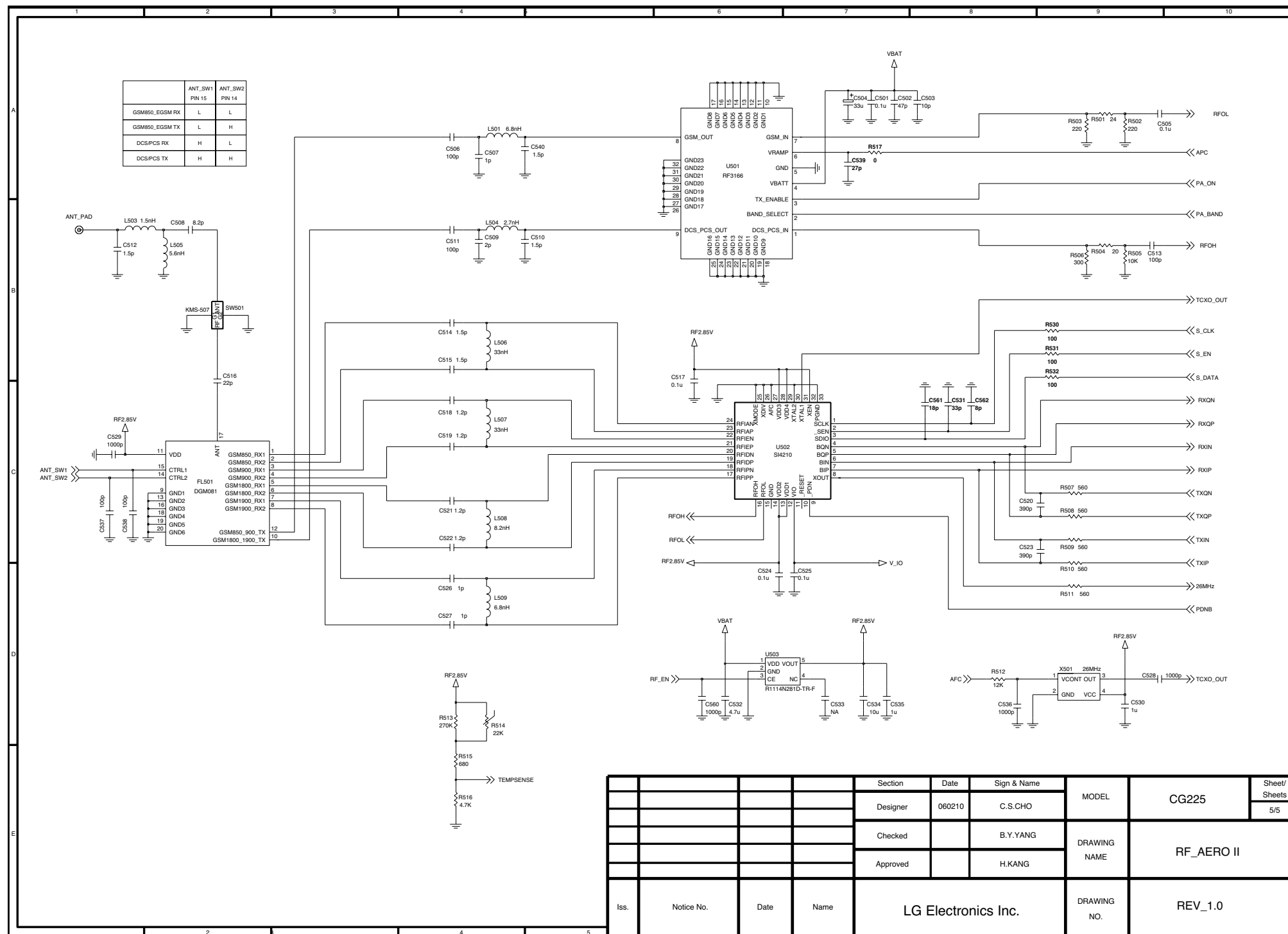
7. CIRCUIT DIAGRAM



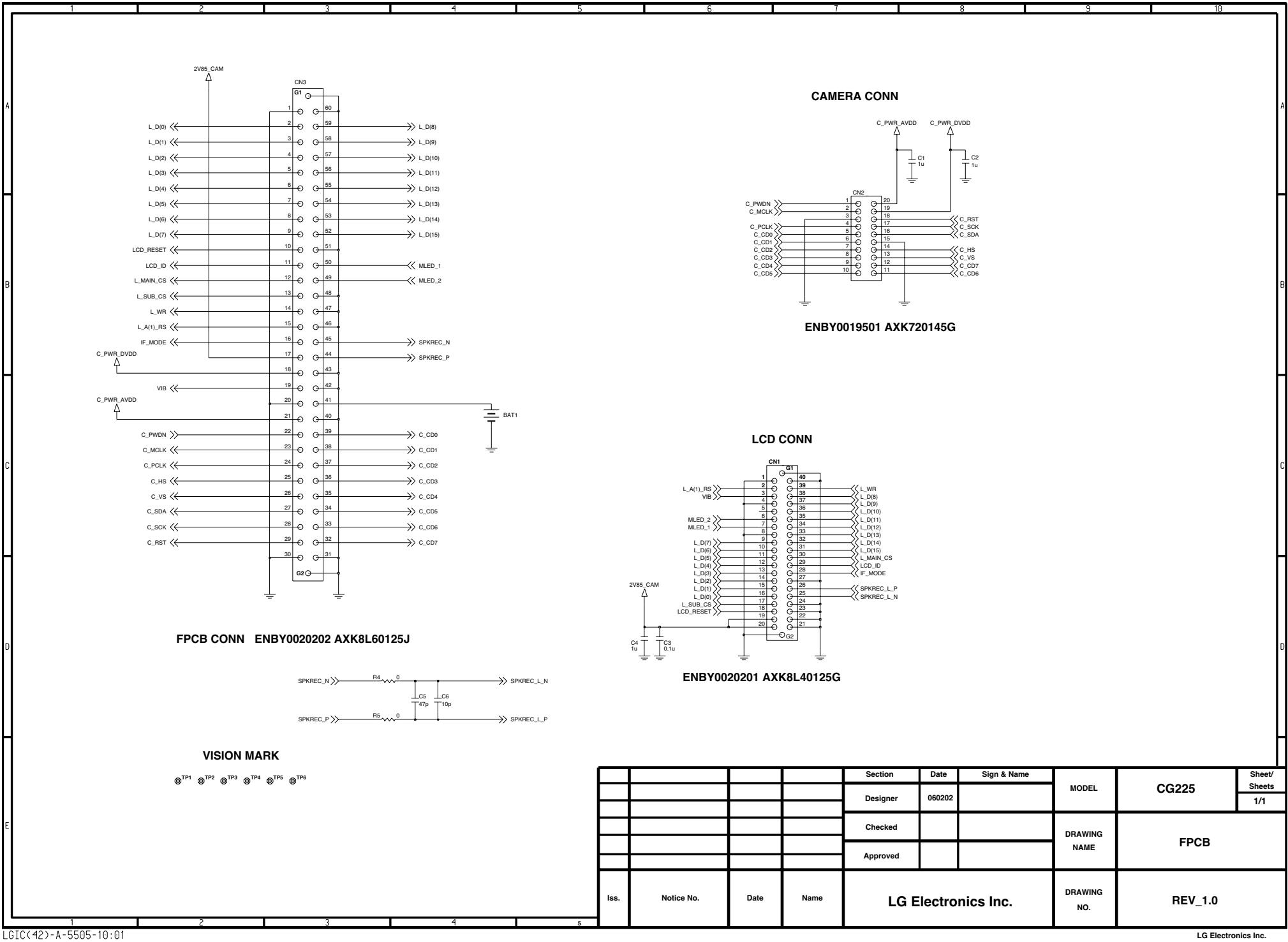
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM



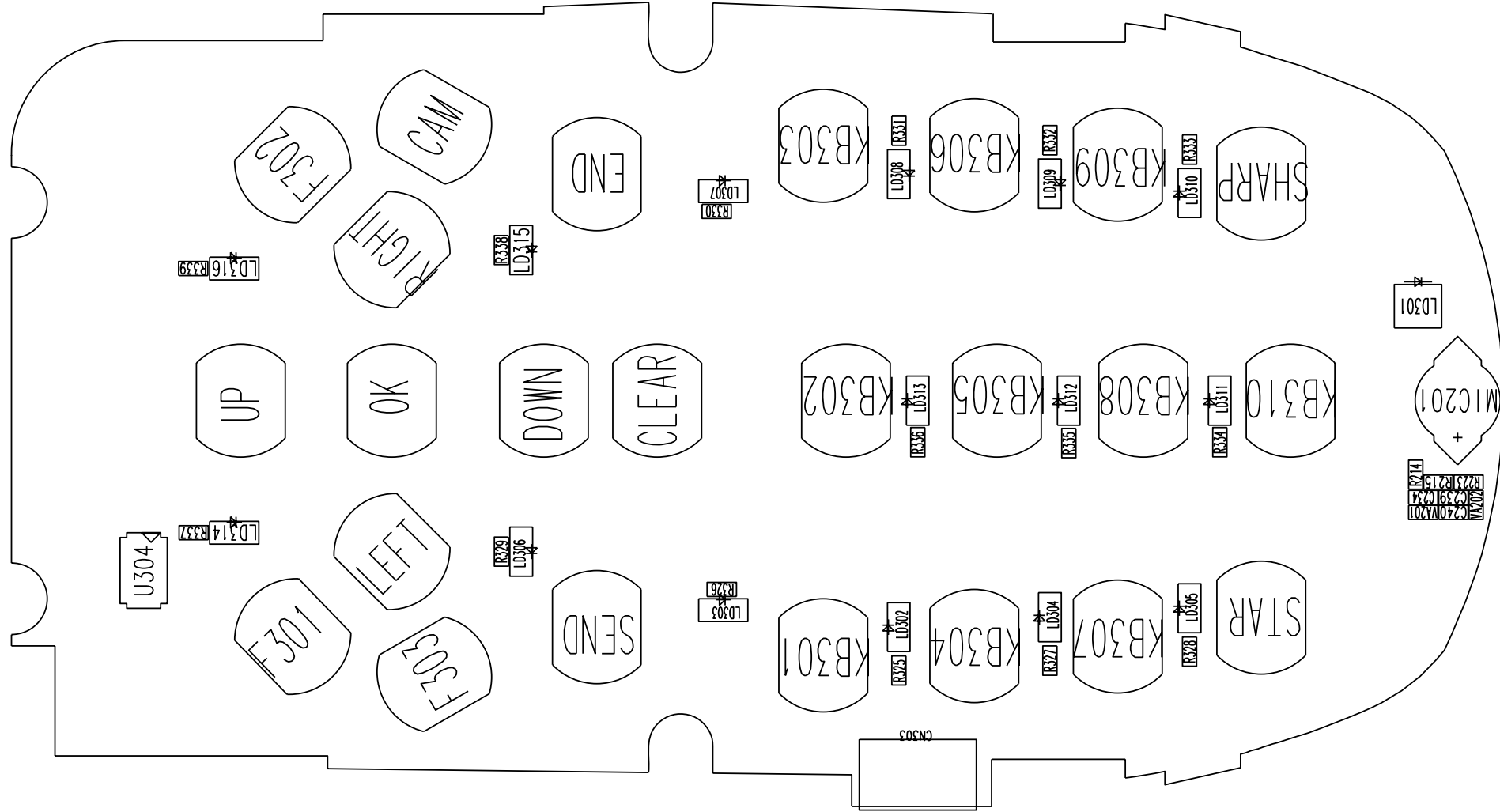
7. CIRCUIT DIAGRAM



LGIC(42)-A-5505-10:01

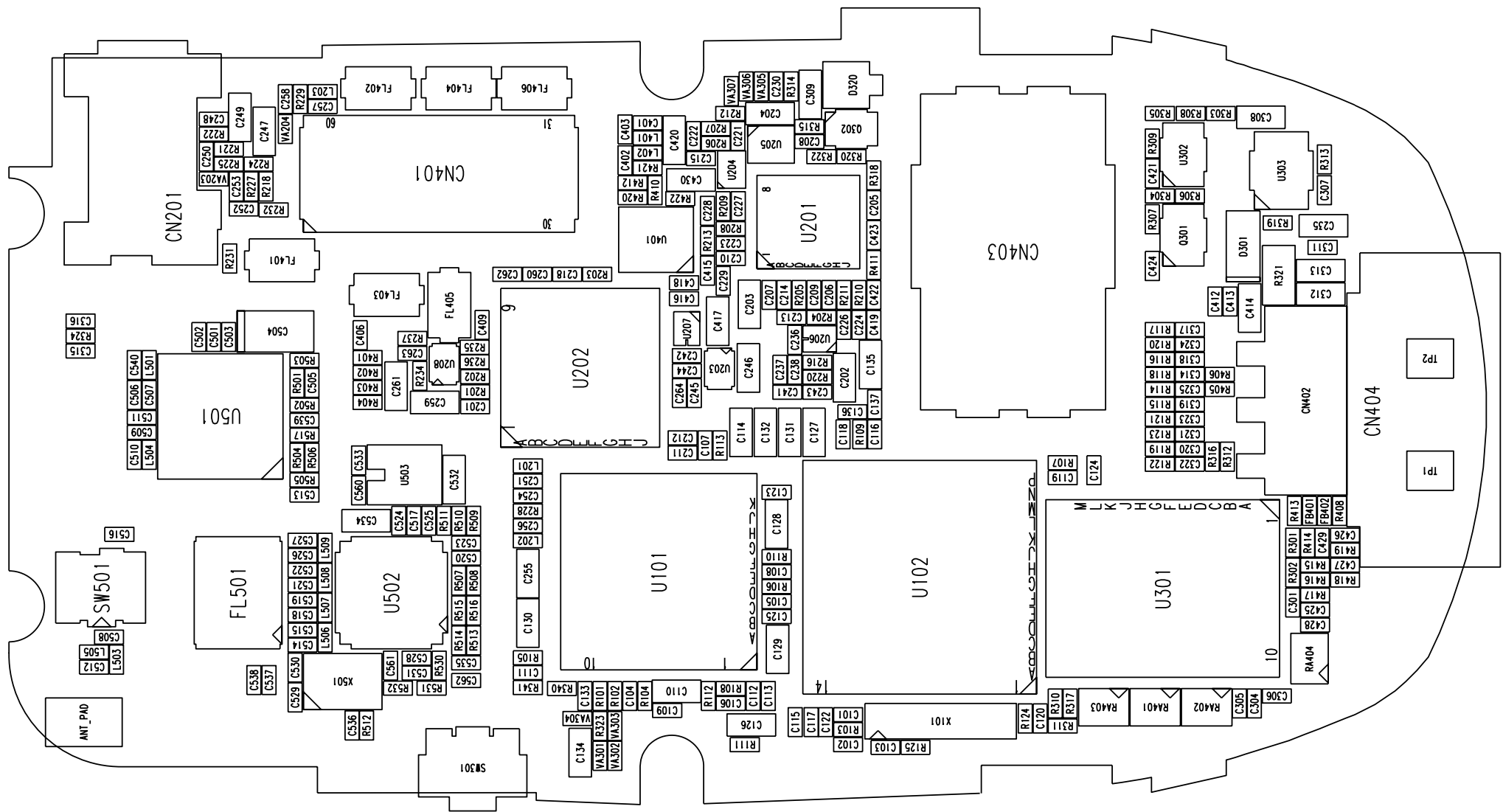
LG Electronics Inc.

8. pcb layout



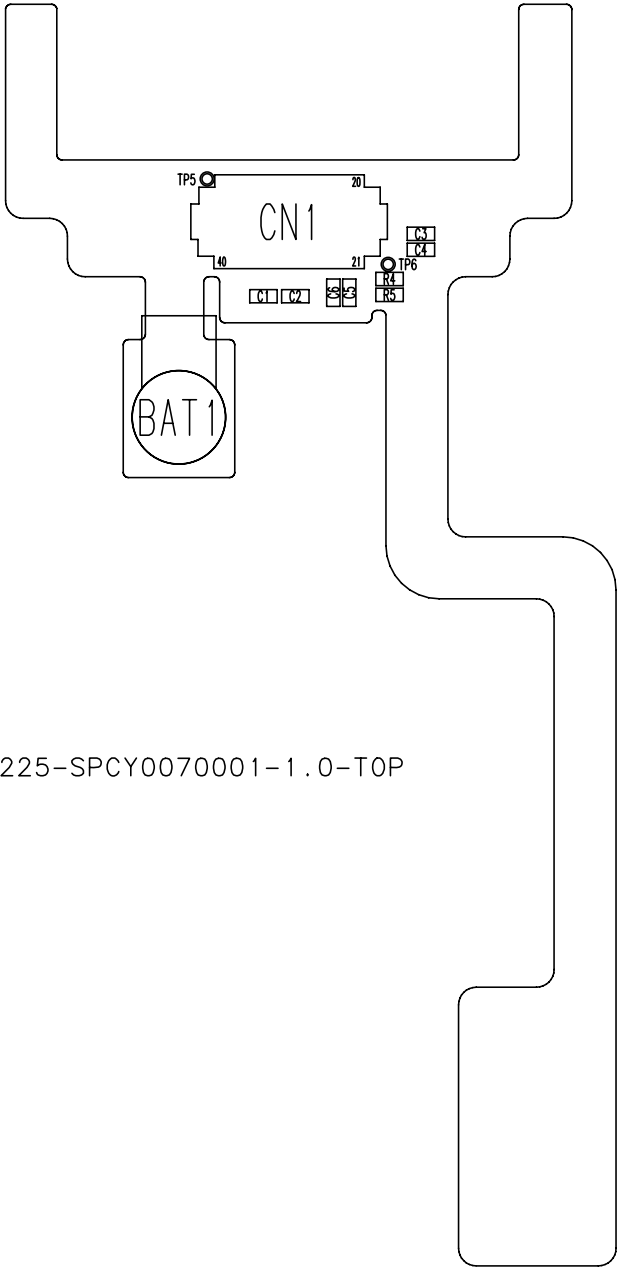
CG225 MAIN-SPFY0118601-1.0-TOP

8. pcb layout



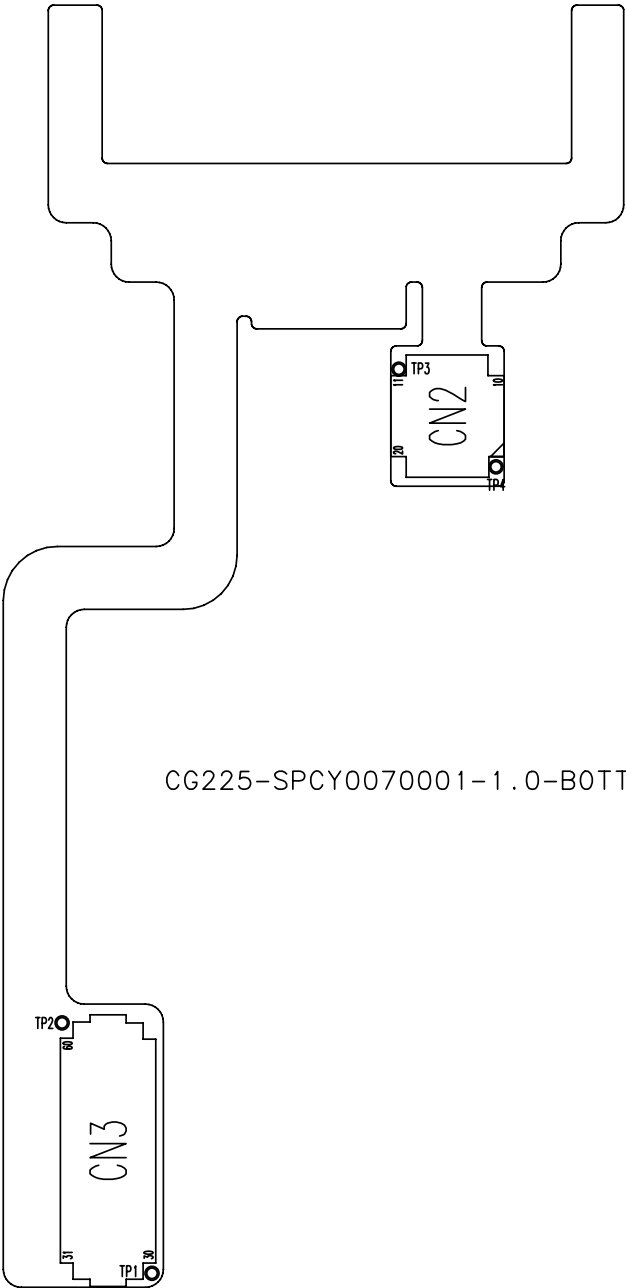
CG225 MAIN-SPFY0118601-1.0-BOTTOM

8. pcb layout



CG225-SPCY0070001-1.0-T0P

8. pcb layout



9. ENGINEERING MODE

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset. The key sequence for switching the engineering mode on is "2945##" "Select. Pressing END will switch back to non-engineering mode operation. Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back key will switch back to the original test menu.

[1] All auto test

[2] Baseband test

[2-1] LED

[2-1-1] BACKLIGHT

[2-1-1-1] MAIN LCD ON/OFF

[2-1-1-2] KEYPAD ON/OFF

[2-2] LCD

[2-2-1] LCD AUTO

[2-2-2] LCD COLOR

[2-3] Camera

[2-3-1] Preview

[2-3-2] Settings

[2-4] FONT

[2-4-1] FONT 810

[2-4-2] FONT 810i

[2-4-3] FONT 816

[2-4-4] FONT 816i

[2-4-5] FONT 816b

[2-4-6] FONT 1018

[2-4-7] FONT 1019

[2-4-8] FONT 1320

[2-5] ALERT

[2-5-1] VIBRATOR

[2-5-2] RING

[2-5-3] EFFECT SOUND

[2-5-4] IMELODY SOUND

[2-5-5] EMS SOUND

[2-6] SERIAL PORT

[2-6-1] MODEM

[2-7] BATTERY INFO1

[2-8] AUDIO GAIN

[2-8-1] RECEIVER

[2-8-2] EAR MIC

[2-8-3] LOUD SPEAKER

[2-8-4] HANDSFREE

[2-8-5] DEFAULT VALUE

[2-8-6] DAI TEST

[2-8-7] LOOPBACK TEST

[3] CG225 VERS

[4] ENG MODE

[4-1] CELL ENVIRON

[4-2] LOCATION INFO

[4-3] LAYER1 INFO

[4-4] SELECTION DE BANDE

[4-5] CMU200 BLER

[5] CALL TIMER

[6] FACTORY DEFAULT

[7] FACTORY RESULT

[8] IM Connection

[9] IM Client ID

10. STANDALONE TEST

10. STANDALONE TEST

10.1 Setting Method

10.1.1 COM Port

In the “Dialog Menu”, select the values as explained below.

- Port : select a correct COM port
- Baudrate : 115200
- Leave the rest as default values

10.1.2 Tx Test

1. Selecting Channel

- Select one of GSM850, PCS Band and input appropriate channel.

2. Selecting APC

- Select either Power level or DAC value.
- Power level
 - Input appropriate value GSM (between 5~19) or PCS (between 0~15)
- DAC value
 - You may adjust directly the power level with DAC values.

10.1.3 Rx Test

1. Selecting Channel

- Select one of GSM850,, PCS Band and input appropriate channel.

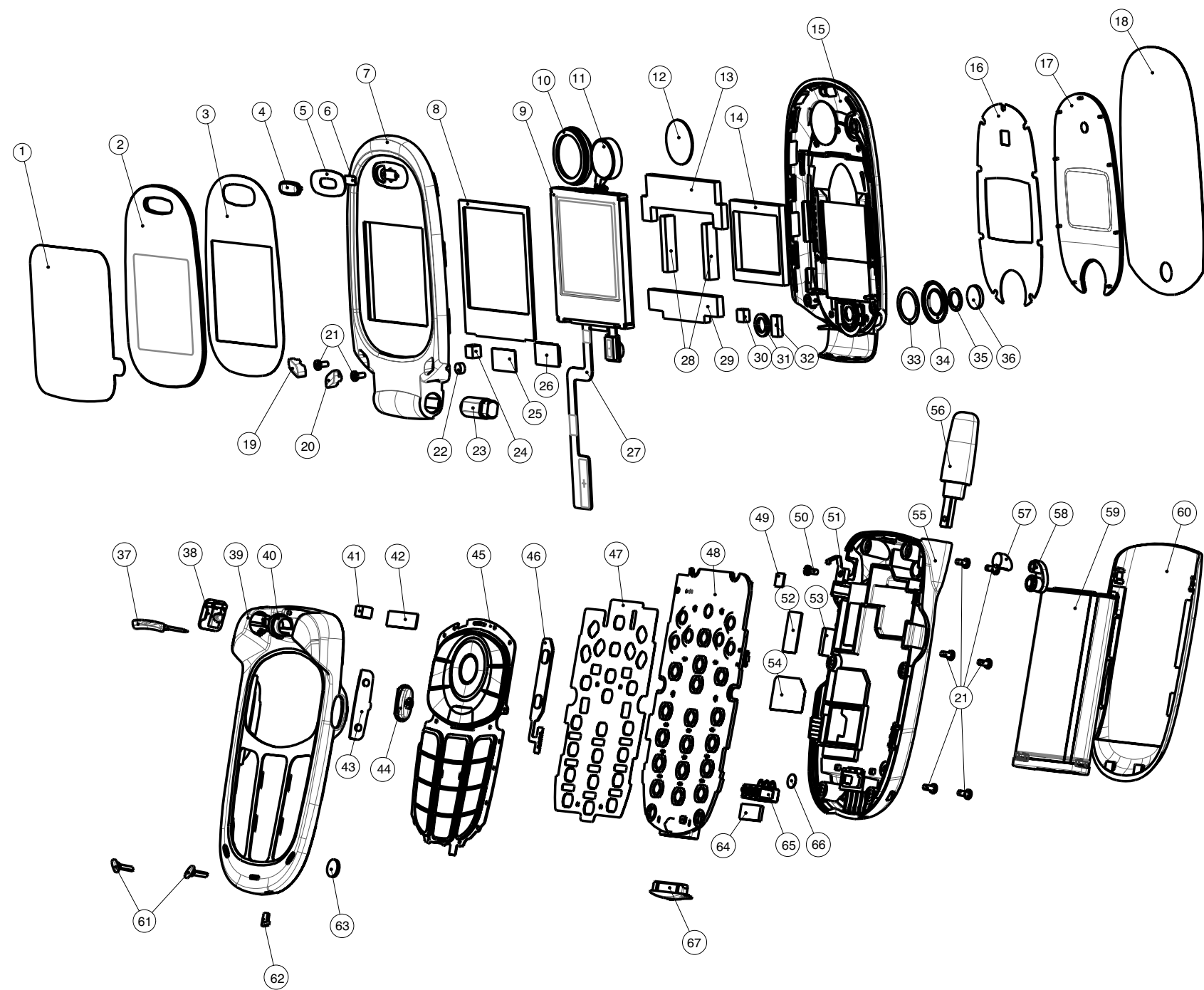
2. Automatic Gain Control and Instrument Power level

See if the value of RSSI is close to -60dBm when setting the value 40 AGC Value Setting.

- Normal phone should indicate the value of RSSI close to -60dBm.

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.1 EXPLODED VIEW



	PART NAME	PART No.	Q'ty
1	TAPE, PROTECTION	MTAB0044101	1
2	WINDOW, LCD	MWAC0064901	1
3	TAPE, WINDOW	MTAD0050401	1
4	DECO,SPEAKER	MDAN0010101	1
5	FILTER,SPEAKER	MFBC0021501	1
6	TAPE,DECO	MTAA0111501	1
7	COVER, FOLDER(LOWER)	MCJH0034001	1
8	PAD,LCD	MPBG0044701	1
9	LCD MODULE	SVLM0018301	1
10	SPEAKER	SUSY0016701	1
11	VIBRATOR,MOTOR	SJMY0002802	1
12	PAD,SPEAKER	MPBN0028801	1
13	PAD	MPBZ0120401	1
14	PAD,LCD(SUB)	MPBQ0027401	1
15	COVER, FOLDER(UPPER)	MCJJ0042001	1
16	TAPE,WINDOW(SUB)	MTAE0027301	1
17	WINDOW ASSY,LCD	AWAB0021001	1
18	TAPE,PROTECTION	MTAB0106001	1
19	CAP,SCREW	MCH0077901	1
20	CAP,SCREW	MCH0078501	1
21	SCREW MACHINE	GMZZ0015101	8
22	MAGNET,SWITCH	MMAA0000601	1
23	HINGE,FOLDER	MHFD0009901	1
24	GASKET,SHIELD FORM	MGAD0109401	1
25	TAPE	MTAZ0115501	1
26	CAMERA	SVCY0010601	1
27	PCB ASSY,FLEXIBLE	SACY0043501	1
28	GASKET,SHIELD FORM	MGAD0109201	2
29	PAD	MPBZ0129901	1
30	GASKET,SHIELD FORM	MGAD0109301	1
31	PAD,CAMERA	MPBT0026601	1
32	PAD	MPBZ0120301	1
33	TAPE,DECO	MTAA0111401	1
34	DECO,CAMERA	MDAD0021101	1
35	TAPE	MTAZ0115401	1
36	WINDOW,CAMERA	MWAE0016101	1
37	STOPPER	MSGY0015501	1
38	CAP,EARPHONE JACK	MCCC0034801	1
39	COVER,FRONT	MCJK0056501	1
40	DECO,HINGE	MDAJ0010201	1
41	PAD	MPBZ0130001	1
42	GASKET, SHIELD FOAM	MGAD0111901	1
43	BUTTON,SIDE	MBJL0030901	1
44	BUTTON	MBJZ0007301	1
45	KEYPAD ASSY	AKAZ0015101	1
46	PCB,SIDEKEY	SPKY0028701	1
47	DOME ASSY,METAL	ADCA0048601	1
48	PCB ASSY,MAIN,SMT	SAFF0058502	1
49	GASKET,SHIELD FORM	MGAD0106301	1
50	SCREW MACHINE	GMZZ0017701	1
51	CONTACT,ANTENNA	MCIA0018001	1
52	GASKET,SHIELD FORM	MGAD0106901	1
53	PAD,BUTTON	MPBR0003301	1
54	INSULATOR	MIDZ0080201	1
55	COVER,REAR	MCJN0051801	1
56	ANTENNA,GSM,FIXED	SNGF0012801	1
57	CAP,SCREW	MCH0077801	1
58	CAP,MOBILE SWITCH	MCCF0034301	1
59	BATTERY PACK,LI-ION	SBPLO080201	1
60	COVER,BATTERY	MCJA0030601	1
61	BUMPER	MBHY0018701	2
62	INDICATOR,LED	MIAA0018001	1
63	PAD,MIKE	MPBH0021001	1
64	GASKET,SHIELD FORM	MGAD0111801	1
65	CONNECTOR,ETC	ENZY0015701	1
66	LABEL,A/S	MLAB0001102	1
67	CAP,RECEPTACLE	MCCF0030302	1

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
1		GSM(FOLDER)	TGFF0074303		Black	
2	AAAY00	ADDITION	AAAY0105801		Without Color	
3	MCJA00	COVER,BATTERY	MCJA0030601	CG225 BATTERY COVER	Black	60
2	APEY00	PHONE	APEY0221201		Black	
3	ACGG00	COVER ASSY,FOLDER	ACGG0071601	CG225	Black	
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0042501	CG225	Black	
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0034001	CG225	Black	7
5	MDAN00	DECO,SPEAKER	MDAN0010101	CG225 DECO SPEAKER	Silver	4
5	MFBC00	FILTER,SPEAKER	MFBC0021501		GRAY SILVER	5
5	MGAD00	GASKET,SHIELD FORM	MGAD0109401	CG225 LOWER FPCB GROUND 3.5X3.5X3.0t	Gold	24
5	MMAA00	MAGNET,SWITCH	MMAA0000601	LG-G510,511,512 common use, DIA : 3.0mm+1.5t	Silver	22
5	MPBG00	PAD,LCD	MPBG0044701	CG225 PAD LCD LOWER	Black	8
5	MTAA00	TAPE,DECO	MTAA0111501	CG225 LOWER SPEAKER DECO TAPE	Without Color	6
5	MTAD00	TAPE,WINDOW	MTAD0050401		Black	3
5	MTAZ00	TAPE	MTAZ0115501	CG225 TAPE CAMERA	Without Color	25
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0055401	CG225	Black	
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0042001	CG225	Black	15
5	MDAD00	DECO,CAMERA	MDAD0021101		Silver	34
5	MGAD00	GASKET,SHIELD FORM	MGAD0109201	LCD GROUND	Gold	28
5	MGAD01	GASKET,SHIELD FORM	MGAD0109301	CG225 UPPER FPCB GROUND	Gold	30
5	MPBN00	PAD,SPEAKER	MPBN0028801		Black	12
5	MPBQ00	PAD,LCD(SUB)	MPBQ0027401		Black	14
5	MPBT00	PAD,CAMERA	MPBT0026601		Black	31
5	MPBZ00	PAD	MPBZ0120301	CG225 CAMERA CONNECT PAD	Black	32
5	MPBZ01	PAD	MPBZ0120401	CG225 LCD PAD	Black	13
5	MPBZ02	PAD	MPBZ0129901	CG225 LCD CONN. PAD	Black	29
5	MTAA00	TAPE,DECO	MTAA0111401		Without Color	33
5	MTAE00	TAPE,WINDOW(SUB)	MTAE0027301		Without Color	16

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
5	MTAZ00	TAPE	MTAZ0115401	CG225 CAMERA WINDOW TAPE	Without Color	35
4	ACGK00	COVER ASSY,FRONT	ACGK0069101	CG225	Black	
5	MBHY00	BUMPER	MBHY0018701	CG225 Bumper	Black	61
5	MBJL00	BUTTON,SIDE	MBJL0030901	CG225 SIDEKEY	Silver	43
5	MBJZ00	BUTTON	MBJZ0007301	CG225 BUTTON (CAMERA)	Silver	44
5	MCCC00	CAP,EARPHONE JACK	MCCC0034801	CG225 EARJACK	Black	38
5	MCJK00	COVER,FRONT	MCJK0056501		Black	39
5	MDAJ00	DECO,HINGE	MDAJ0010201	MIM	Silver	40
5	MIAA00	INDICATOR,LED	MIAA0018001	CG225 Front LED	Without Color	62
5	MPBH00	PAD,MIKE	MPBH0021001		Black	63
5	MPBZ00	PAD	MPBZ0130001	CG225 PAD FPCB	Black	41
5	MSGY00	STOPPER	MSGY0015501		Black	37
4	AWAB00	WINDOW ASSY,LCD	AWAB0021001	CG225	Dark Gray	17
5	BFAA00	FILM,INMOLD	BFAA0036901	CG225	Without Color	
5	MWAC00	WINDOW,LCD	MWAC0064801	CG225	Without Color	
4	GMZZ00	SCREW MACHINE	GMZZ0015101	1.4 mm,3.0 mm,MSWR3(FN) ,N ,+ , - ,	Silver	21
4	MCCH00	CAP,SCREW	MCCH0077901	CG220 Folder Screw Cap 'L'	Black	19
4	MCCH01	CAP,SCREW	MCCH0078501	CG225 Folder Screw cap 'R'	Black	20
4	MGAD00	GASKET,SHIELD FORM	MGAD0111901	CG225 PCB GASKET 2	Gold	42
4	MHFD00	HINGE,FOLDER	MHFD0009901	6.5Kgf.mm(PREXCO)	DEEP SILVER	23
4	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)	Without Color	
4	MTAB00	TAPE,PROTECTION	MTAB0044101	C1200, LCD protection tape, 0.05t	Without Color	1
4	MTAB01	TAPE,PROTECTION	MTAB0106001		Without Color	18
4	MWAC00	WINDOW,LCD	MWAC0064901	CG225	Without Color	2
4	MWAE00	WINDOW,CAMERA	MWAE0016101	CG225	Without Color	36
3	ACGM00	COVER ASSY,REAR	ACGM0069601	CG225	Black	
4	GMZZ00	SCREW MACHINE	GMZZ0017701	1.4 mm,3.0 mm,MSWR3 ,N ,+ , - ,	Silver	50
4	MCIA00	CONTACT,ANTENNA	MCIA0018001	CG225 CONTACT ANT,	Gold	51
4	MCJN00	COVER,REAR	MCJN0051801	CG225 REAR	Black	55
4	MGAD00	GASKET,SHIELD FORM	MGAD0106901	CG225 Rear Fpcb	Gold	52

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	MGAD01	GASKET,SHIELD FORM	MGAD0111801	CG225 IO GASKET	Gold	64
4	MIDZ00	INSULATOR	MIDZ0080201	CG225Rear Sim INSULATOR	Blue	54
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	66
4	MPBR00	PAD,BUTTON	MPBR0003301	CG225 Rear Sidekey PAD	Black	53
3	AKAZ00	KEYPAD ASSY	AKAZ0015101	CG225	Black	45
3	GMZZ00	SCREW MACHINE	GMZZ0015101	1.4 mm,3.0 mm,MSWR3(FN) ,N ,+ , - ,	Silver	
3	MCCE00	CAP,RECEPTACLE	MCCE0030302	MG210c CAP RECEPTACLE	Black	67
3	MCCF00	CAP,MOBILE SWITCH	MCCF0034301	CG225	Black	58
3	MCCH00	CAP,SCREW	MCCH0077801	CG225	Black	57
3	MLAK00	LABEL,MODEL	MLAK0006901			
5	ADCA00	DOME ASSY,METAL	ADCA0048601	CG225	Without Color	47
5	MGAD00	GASKET,SHIELD FORM	MGAD0106301	CG225 PCB GASKET	Gold	49
5	MLAB00	LABEL,A/S	MLAB0001103	C2000 CGRSV	White	
5	MLAC00	LABEL,BARCODE	MLAC0003301	EZ LOOKS(use for PCB ASSY MAIN(hardware))	Without Color	

11. EXPLODED VIEW & REPLACEMENT PART LIST

<Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	SACY00	PCB ASSY,FLEXIBLE	SACY0043501			27
5	SACB00	PCB ASSY, FLEXIBLE,INSERT	SACB0028401			
6	BAT1	BATTERY,CELL,LITHIUM	SBCL0001001	3 V,1.2 mAh,COIN ,MATUESHITA Backup BATTERY (ML414/F9D)		
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0038201			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0021601			
7	CN2	CONNECTOR,BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , ,H=1.5, Socket		
7	CN3	CONNECTOR,BOARD TO BOARD	ENBY0020202	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 0.9 / HEADER FOR KEYPAD TO MAIN		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0030901			
7	C1	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C2	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C3	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C4	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C5	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
7	C6	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	CN1	CONNECTOR,BOARD TO BOARD	ENBY0020201	40 PIN,0.4 mm,ETC , ,H=0.9, Header		
7	R4	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
7	R5	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	SPCY00	PCB,FLEXIBLE	SPCY0070001	POLYI ,0.5 mm,MULTI-6 ,		
4	SJMY00	VIBRATOR,MOTOR	SJMY0002802	3 V,0.08 A,12*15 ,G5300 VIBRATOR (0.5t PAD)		11
4	SUSY00	SPEAKER	SUSY0016701	ASSY ,8 ohm,91 dB,17 mm,		10
4	SVCY00	CAMERA	SVCY0010601	CMOS ,VGA ,B toB Type		25
4	SVLM00	LCD MODULE	SVLM0018301	MAIN ,128*128 (1.5")+96*64 (MSTN) ,35.78x39.9x4.3(Max) ,65k ,CSTN ,TM ,M:S-44206D/S:S-44001A ,SUB Color Film		9
4	ENZY00	CONNECTOR,ETC	ENZY0015701	3 PIN,3 mm,ETC , ,H=6.5		65
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0012801	3.0 ,-7.1 dBd ,3.0 -7.1dBi Dark Gray Black,External_Fixed Pb-Free		56
3	SAFY00	PCB ASSY,MAIN	SAFY0133902			
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0046301			
5	SPKY00	PCB,SIDEKEY	SPKY0028701	POLYI ,0.3 mm,DOUBLE ,		46

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0058502			48
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0053901			
6	C101	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C108	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C119	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C129	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C133	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C134	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C136	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		
6	C214	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C230	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C235	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C236	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C237	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C238	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C243	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C244	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C245	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C248	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C249	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C250	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C251	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C253	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C254	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C255	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C256	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C257	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C258	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C259	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C260	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C261	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C262	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C263	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C264	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C316	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C406	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C424	CAP,CERAMIC,CHIP	ECCH0000187	150 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C428	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C429	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C430	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C501	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C504	CAP,TANTAL,CHIP,MAKER	ECTZ0003101	33 uF,10V ,M ,STD ,ETC ,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C506	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C508	CAP,CHIP,MAKER	ECZH0000846	8.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C509	CAP,CHIP,MAKER	ECZH0000803	2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C510	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C513	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C514	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C515	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C516	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C517	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C518	CAP,CERAMIC,CHIP	ECCH0000173	1.2 pF,16V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C519	CAP,CERAMIC,CHIP	ECCH0000173	1.2 pF,16V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000138	390 pF,50V,K,X7R,HD,1005,R/TP		
6	C521	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C523	CAP,CERAMIC,CHIP	ECCH0000138	390 pF,50V,K,X7R,HD,1005,R/TP		
6	C524	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C526	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C527	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C528	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C529	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C530	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C531	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C532	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C534	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C536	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C537	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C538	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C539	CAP,CHIP,MAKER	ECZH0000826	27 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C540	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C560	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C561	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C562	CAP,CERAMIC,CHIP	ECCH0000109	8 pF,50V,D,NP0,TC,1005,R/TP		
6	CN201	CONN,JACK/PLUG, EARPHONE	ENJE0002301	3,5 PIN,G7000 EAR JACK 3 pole, 5 pin KSD		
6	CN401	CONNECTOR,BOARD TO BOARD	ENBY0020402	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 0.9 / SOCKET FOR KEYPAD TO MAIN		
6	CN403	CONN,SOCKET	ENSY0015101	6 PIN,ETC , ,2.54 mm,H=2.7		
6	CN404	CONNECTOR,I/O	ENRY0000801	24 PIN,0.5 mm,ETC ,Au ,BAT ZERO		
6	D301	DIODE,SWITCHING	EDSY0012101	US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t)		
6	D320	DIODE,SWITCHING	EDSY0005301	SC-70 ,80 V,0.1 A,R/TP ,		
6	FB401	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB402	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL401	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL402	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL403	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL404	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL405	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL406	VARISTOR	SEVY0007001	18 V,- ,SMD ,6ch, 100ohm, EMI Filter Array chip varistor		
6	FL501	FILTER,SEPERATOR	SFAY0006902	850.900 ,1800.1900 ,3.8 dB,4.1 dB, dB, dB,ETC ,5.4*4.0 Size Quad Band FEM		
6	L201	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L202	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L203	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L401	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L402	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L501	INDUCTOR,CHIP	ELCH0001408	6.8 nH,J ,1005 ,R/TP ,Pb Free		
6	L503	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	L504	INDUCTOR,CHIP	ELCH0005002	2.7 nH,S ,1005 ,R/TP ,		
6	L505	INDUCTOR,CHIP	ELCH0001407	5.6 nH,S ,1005 ,R/TP ,PBFREE		
6	L506	INDUCTOR,CHIP	ELCH0010502	33 nH,J ,1005 ,R/TP ,Laser Cutting Type		
6	L507	INDUCTOR,CHIP	ELCH0010502	33 nH,J ,1005 ,R/TP ,Laser Cutting Type		
6	L508	INDUCTOR,CHIP	ELCH0010503	8.2 nH,J ,1005 ,R/TP ,Laser Cutting Type		
6	L509	INDUCTOR,CHIP	ELCH0009109	6.8 nH,J ,1005 ,R/TP ,chip coil		
6	Q301	TR,BJT,ARRAY	EQBA0000406	SC-70 ,0.2 W,R/TP ,CDMA,Common use		
6	Q302	TR,BJT,ARRAY	EQBA0002701	EMT6 ,150 mW,R/TP ,NPN, PNP, 150 mA		
6	R101	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R102	RES,CHIP	ERHY0000138	33K ohm,1/16W,F,1005,R/TP		
6	R103	RES,CHIP	ERHY0000287	220K ohm,1/16W,J,1005,R/TP		
6	R104	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R105	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R106	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R107	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R108	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R109	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R110	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R111	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R112	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R113	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R114	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R115	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R116	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R117	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R118	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R119	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R120	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R121	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R122	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R123	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R201	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R202	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R203	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R205	RES,CHIP	ERHY0000187	6.8 Kohm,1/16W ,F ,1005 ,R/TP		
6	R206	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R207	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R208	RES,CHIP	ERHY0000271	39K ohm,1/16W,J,1005,R/TP		
6	R209	RES,CHIP	ERHY0000282	120K ohm,1/16W,J,1005,R/TP		
6	R210	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R211	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R212	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000466	33 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R218	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R220	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R221	RES,CHIP	ERHY0000255	5.6K ohm,1/16W,J,1005,R/TP		
6	R222	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R224	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R225	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R227	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R228	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R229	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R231	RES,CHIP	ERHY0000138	33K ohm,1/16W,F,1005,R/TP		
6	R232	RES,CHIP	ERHY0000266	22K ohm,1/16W,J,1005,R/TP		
6	R234	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R235	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R236	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R237	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP	ERHY0000222	120 ohm,1/16W,J,1005,R/TP		
6	R303	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R304	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R305	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R306	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R307	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R308	RES,CHIP	ERHY0000268	27K ohm,1/16W,J,1005,R/TP		
6	R309	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R310	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R313	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R314	RES,CHIP	ERHY0000207	20 ohm,1/16W,J,1005,R/TP		
6	R315	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R316	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R317	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R318	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		
6	R319	RES,CHIP	ERHY0000205	15 ohm,1/16W,J,1005,R/TP		
6	R320	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP		
6	R321	RES,CHIP	ERHY0001102	0.2 ohm,1/4W ,F ,2012 ,R/TP		
6	R322	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R323	RES,CHIP	ERHY0000236	620 ohm,1/16W,J,1005,R/TP		
6	R324	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R340	RES,CHIP	ERHY0000207	20 ohm,1/16W,J,1005,R/TP		
6	R341	RES,CHIP	ERHY0000207	20 ohm,1/16W,J,1005,R/TP		
6	R401	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R402	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R403	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R404	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R405	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R406	RES,CHIP	ERHY0000138	33K ohm,1/16W,F,1005,R/TP		
6	R408	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R410	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R411	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R412	RES,CHIP	ERHY0000215	56 ohm,1/16W,J,1005,R/TP		
6	R413	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R418	RES,CHIP	ERHY0000287	220K ohm,1/16W,J,1005,R/TP		
6	R419	RES,CHIP	ERHY0000287	220K ohm,1/16W,J,1005,R/TP		
6	R420	RES,CHIP	ERHY0000215	56 ohm,1/16W,J,1005,R/TP		
6	R421	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R422	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R501	RES,CHIP	ERHY0008201	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R502	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		
6	R503	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R504	RES,CHIP	ERHY0000207	20 ohm,1/16W,J,1005,R/TP		
6	R505	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R506	RES,CHIP	ERHY0000229	300 ohm,1/16W,J,1005,R/TP		
6	R507	RES,CHIP	ERHY0000235	560 ohm,1/16W,J,1005,R/TP		
6	R508	RES,CHIP	ERHY0000235	560 ohm,1/16W,J,1005,R/TP		
6	R509	RES,CHIP	ERHY0000235	560 ohm,1/16W,J,1005,R/TP		
6	R510	RES,CHIP	ERHY0000235	560 ohm,1/16W,J,1005,R/TP		
6	R511	RES,CHIP	ERHY0000235	560 ohm,1/16W,J,1005,R/TP		
6	R512	RES,CHIP	ERHY0000262	12K ohm,1/16W,J,1005,R/TP		
6	R513	RES,CHIP	ERHY0000289	270K ohm,1/16W,J,1005,R/TP		
6	R514	THERMISTOR	SETY0006501	NTC ,22000 ohm,SMD , 1005, ECTH 1005 Series, Pb Free		
6	R515	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R516	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R517	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R530	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R531	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R532	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	RA401	RES,ARRAY,R	ERNR0000403	10000 ohm, ohm,8 PIN,J ,1/32 W ,SMD ,R/TP		
6	RA402	RES,ARRAY,R	ERNR0000401	47 ohm, ohm,8 PIN,J ,1/32 W ,SMD ,R/TP		
6	RA403	RES,ARRAY,R	ERNR0000401	47 ohm, ohm,8 PIN,J ,1/32 W ,SMD ,R/TP		
6	SW301	SWITCH,TACT	ESCY0002501	12 V,0.05 A,HORIZONTAL ,220 G,G5200 TACK S/W		
6	SW501	CONN,RF SWITCH	ENWY0003301	,SMD ,0.4 dB,		
6	U101	IC	EUSY0243001	BGA ,100 PIN,R/TP ,ABB(IOTA Shrink), Pb Free		
6	U102	IC	EUSY0155201	179GHH PBGA ,179 PIN,R/TP ,CALYPSO / DIGITAL BB CHIP, Pb Free		
6	U201	IC	EUSY0291001	67ball WLCSP, 64Poly+MP3 ,67 PIN,R/TP ,		
6	U202	IC	EUSY0264101			
6	U203	IC	EUSY0288901	MLF-4 ,4 PIN,R/TP ,2.8V, 150mA, LDO, Pb-Free		
6	U204	IC	EUSY0159101	MICRO FOOT(6 BUMP) ,6 PIN,R/TP ,SPDT ANALOG SWITCH		
6	U205	IC	EUSY0188601	MICROBUMP ,10 PIN,R/TP ,Dual SPDT Analog switch(Pb Free)		
6	U206	IC	EUSY0227901	SON5-P-0.35(fSV) , 5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U301	IC	EUSY0226301	FBGA ,64 PIN,R/TP ,128M NOR+64M PSRAM / PB FREE		
6	U302	IC	EUSY0077301	SC70-6 ,6 PIN,R/TP ,SPDT Analog switch		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	U303	TR,FET,P-CHANNEL	EQFP0003301	SOT-6 ,1.6 W,30 V,2.4 A,R/TP ,use for charge P-CHANNEL FET		
6	U401	IC	EUSY0253601	TSSPJW12 ,12 PIN,R/TP ,BACKLIGHT CHARGE PUMP20mAX3		
6	U501	PAM	SMPY0008901	35 dBm,55 % ,2 A,-50 dBc,25 dB,6.0 * 6.0 * 1.4 ,SMD ,GSM QUAD PAM		
6	U502	IC	EUSY0223201	5.0*5.0 ,32 PIN,R/TP ,AERO11 TRANSCEIVER		
6	U503	IC	EUSY0232802	sot 23-5 ,5 PIN,R/TP ,2.8V,150mA LDO		
6	VA203	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA204	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA301	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA302	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA303	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA304	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA305	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA306	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA307	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	X101	X-TAL	EXXY0015601	.032768 MHz,20 PPM,7 pF,65000 ohm,SMD ,6.9*1.4*1.3 ,		
6	X501	VCTCXO	EXSK0005601	26 MHz,2 PPM,10 pF,SMD ,3.2*2.5*1.0 ,		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0052501			
6	C234	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	LD301	DIODE,LED,CHIP	EDLH0003401	RED, GREEN ,ETC ,R/TP ,SIZE 1315 , GSM DUAL LED		
6	LD302	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD303	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD304	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD305	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD306	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD307	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD308	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD309	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD310	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD311	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD312	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD313	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	LD314	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD315	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD316	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	MIC201	MICROPHONE	SUMY0010508	PIN ,42 dB,4*4 ,SMD Bridge Type		
6	R214	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R215	RES,CHIP	ERHY0000248	2.4K ohm,1/16W,J,1005,R/TP		
6	R223	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R331	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R332	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R333	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R334	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R335	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R336	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R337	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R338	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	R339	RES,CHIP,MAKER	ERHZ0000527	200 ohm,1/6W ,J ,1005 ,R/TP		
6	U304	IC	EUSY0200301	Leadless chip ,6 PIN,R/TP ,Hall S/W, Pb Free		
6	VA201	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA202	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
5	SPFY00	PCB,MAIN	SPFY0118601	FR-4 ,1.0 mm,BUILD-UP 8 ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

10.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0080201	3.7 V,1000 mAh,1 CELL,PRISMATIC,C2000BATT.T: Center 3, (Cingular, LDI : White), Pb-Free	Blue	59
3	SSAD00	ADAPTOR,AC-DC	SSAD0007839	FREE ,50 Hz,5.2 V,800 mA,CE,CB ,		

Note
